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COVER: Widely distributed and a favorite with anglers wherever found, the yellow perch, or ring perch as it is often called, has been called the "catingest" of all small American game fish. They are active at this season, and likely to be heavy with roe, as artist Duane Raver has illustrated on this month's cover.

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EDITORIAL

Save the Turkey Hens

IN the fall of 1966 Virginia hunters legally killed 4040 wild turkeys, 2378 (about 60%) of which were hens. In the season just ended the total turkey kill was down to 2338 birds, again over half of them from the female segment of the population upon which the size of next fall's turkey crop depends.

At their present relatively low levels, the turkey flocks in most sections of the state cannot long survive such an annual toll of hens. Yet nearly every restriction on fall turkey hunting designed to increase the carry-over of breeding stock is greeted as though it were an effort to abridge a constitutional right of an allegedly distinct and downtrodden minority group of sportsmen variously referred to as "turkey hunters," "real turkey hunters," "old turkey hunters," "real old turkey hunters," and sometimes even "poor old turkey hunters." Whatever you may call us, we who hunt the wild turkey have plenty of spokesmen. The question is: Who speaks for the turkeys?

When there are about as many turkeys as their range can support—when the "woods are full of turkeys"—there is an autumn surplus of females, as well as males, that can safely be harvested. When available turkey habitat is understocked, as it most certainly is in Virginia now, the only biological surplus that exists is among the males. Habitat, of course, is one of the keys to wild turkey abundance, but only breeding hens can produce the broods required to make full use of the best turkey habitat. Favorable weather during the critical nesting, hatching, and immediate post-hatching periods is another key to turkey abundance, but only hens carried over from the previous fall's population peak can take advantage of the best of nesting seasons.

It is worth noting that Virginia, once nearly devoid of substantial deer herds, now sustains an annual deer kill about ten times as large as her average wild turkey harvests. One reason for this is that while many deer hunters will voluntarily pass up antlerless deer, thus saving the female breeding stock, there are few turkey hunters who are that selective in seeking bearded gobblers during the fall hunt. One wonders how long we could enjoy our present abundance of deer if our doe harvest ran to 60% of the total kill. One also wonders how our turkey flocks might thrive if the annual fall slaughter of hens were curtailed, say to 30% of the total kill.

Turkey hunters, let's start a do-it-yourself SAVE THE HENS campaign! Let's each take the pledge, and then talk it up good and loud whenever turkey hunters meet. Let it become our creed that in Virginia sportsmen prefer gobblers, and do not intentionally shoot hens. Let our admiration of the trophy be in proportion to the length of its beard. It is hard to be sure in the fall, but let's pledge to try hard to shoot only bearded turkeys, and be willing to pass up a shot when we are not sure. Let's make identification easier by hunting turkeys the traditional "squander and call" way instead of trying to shoot birds on the flush. And above all, let's save at least one turkey tab on our license every year for the spring gobbler hunt.

Who speaks for the turkeys? Why, the real turkey hunters themselves, of course.—J. F. Mc.

LETTERS

Readers Appreciate Cover Art

MY check for another year of *Virginia Wildlife* is enclosed, and gladly.

Let me say that your cover paintings, twelve of them during the year, are worth, alone, the $1.50 I've paid for many years to keep my subscription going. The covers, plus all the fine contents, for an Ohioan, like me. Conservation in Virginia is great, and at least partly credit goes to the influence of your magazine.

Your January cover by J. M. Roever is among your very best! That homely otter, in the foreground, staring me in the face, with his whiskers, etc., is a classic. In my life I've known a couple of humans who looked like that, and they were both swell guys.

Fred R. Witt
Gates Mills, Ohio

FOR several years I have received copies of *Virginia Wildlife*. It is my opinion that the art work and photography materials used on the covers are among the best to be found on any wildlife publication. This is especially true of all the work that I have seen done by John W. Taylor.

Keep up the good work.

Allen R. Brown
Richmond

Thanks, and a bouquet of roses to our contributing artists. Doesn't someone like Duane Raver's work too?—Ed.

More About Saltwater Fishing

I have been receiving *Virginia Wildlife* for years. I enjoy reading your magazine, but I have never read very many articles on Virginia's saltwater fishing.

I think that *Virginia Wildlife* should publish more articles on our saltwater fishing, even if the magazine is published by the Commission of Game and *Inland* Fisheries. More articles should be published on the Chesapeake Bay. You could also run something on the off-shore fishing, maybe on the annual runs of the "big blues," and an article or two on the Gulf Stream fishing for dolphin and other large game fish, such as the white marlin. They are also a part of Virginia's wildlife and are pursued by many Virginians.

A monthly column about saltwater fishing would be a nice improvement.

S. Lawrence Dumville
Richmond

We have printed, and will continue to print, some articles on saltwater sport fishing. Although saltwater fisheries are not under the jurisdiction of the Commission of Game and Inland Fisheries, we certainly agree as to their importance as part of our whole heritage of outdoor recreational resources. We always appreciate expressions from our readers as to what they would like to see in the magazine.—Ed.

A SEASON TO REMEMBER

By OZZIE WORLEY
Roanoke

THE 1967-68 hunting season will be fixed indelibly in the memory of one Virginia man. Not only that, but Kenneth Lee Harden will be the envy of fellow nimrods across the state.

Harden, a 25-year-old New Castle resident, scored a rarity for western Virginia—a big-game grand slam.

In succession, he bagged:

A five-point buck.

A 200-pound plus black bear.

Two turkey gobblers weighing about 15 pounds each.

James Harden displays a grand slam fistful of game cards—one deer, one bear, two turkeys.

Harden thus harvested the maximum the law allows in a single season in counties west of the Blue Ridge Mountains.

He started on the way to his unusual feat on November 20, the opening day of the deer season, when he brought down the buck.

He bagged the bear next—on Thanksgiving Day.

Both were shot with a 30.05 automatic rifle.

After these two kills, it began to look like Harden's luck had played out. All that was left for him in the big-game line were turkeys, but he failed to spot any on several forays.

Then on December 15—next to the last day of the turkey season in Craig County and some other western counties—Harden called up a gobbler and nailed it with his 12-gauge shotgun. He returned the next day and shot another in almost the same place.

To confirm his great luck, he has a fistful of big-game cards—all given to him at the same checking station—which he will produce at the drop of a hat.

Harden recalls that when the fellow at the checking station saw him approaching with his number two turkey he exclaimed: "No, not you again!"

The turkeys, deer and bear all were bagged on Jefferson National Forest land in the Caldwell Mountain section of Craig.

Harden's phenomenal big-game string included some "firsts." He broke the ice on bear and turkeys, although he'd shot deer in previous seasons.

He prefers to hunt solo and, in fact, was alone on all of the trips except on Thanksgiving when he shot the bear. His father was along on that hunt.

He has had a rug made from the bear skin as another memento of his luck this season.

He is modest about it all. He credits his grand slam to "90 percent luck and 10 percent skill and knowing where to go."

"Where to go" is no problem, since he is a Craig native and lives only a stone's throw from good hunting country.

He has hunted regularly from the day when he was 12 years old and knocked a squirrel from a tree with a 20-gauge shotgun. And he is sure that some of the hunting prowess of his dad, with whom he hunted a great deal as a youngster, rubbed off on him. His father's record includes 17 deer (one 14-pointer) and 3 bears.

Harden, who works for the State Highway Department, is not a meat-hunter. He usually gives away all of his game, although he held onto those two turkeys bagged in 1967. "My wife likes them," he explained.

Despite his rare big-game luck, the bigger animals are not his favorite pursuit. "I like coon-hunting best, I guess," he says.

Looking back over the past season, he observes that "it's hard to believe I was so lucky, and I'll probably never be able to duplicate it."

Tom Walker and his opening day double-header.

ANOTHER hunter for whom 1967 was a season to remember is Robert T. "Tom" Walker of Altavista, who bagged an 8-point buck and a black bear within an hour on opening day in Craig County.

Walker was with a hunting party of five, tent camped on Potts mountain near Newcastle, that took a total of three deer and one bear that memorable day. The above picture, taken about 12:15 p.m., minutes after the bear was shot and less than an hour after the buck was downed, was sent to *Virginia Wildlife* by another member of the hunting party, James H. Place, Altavista.

OTTO THE OTTER

By SALINDA V. JAMES
Windsor

WINTER was still in great evidence even though Mother Nature had begun to unpack and air her spring garments. Birds in large numbers and variety flitted through the trees and across the pond. Their high-pitched melodies made distinct staccato impressions on my ear drum.

Carp leaped from the murky water and reflected the sunlight. All along the banks the leafless bushes and reeds rustled as the wind walked through. The slap-splash-slap of the carp as they cavorted in the water, reaching for the sun, was echoed and re-echoed along the water's edge.

Facing east I enjoyed for the thousandth time the pines which guarded that end of the pond. It was that small stand of pines which had commanded my attention the first time I saw the place and urged me to rename it Pine Pond. The pines, which stood as proud and stately as a company of soldiers, offered their deep green boughs laden with cones. The mozaic brown bark that encased the trunk simultaneously reached for the sky and earth. The roots were covered, cushioned by loosely scattered thick layers of pine needles.

I heard an uncommonly loud splash in the pond while I enjoyed the view. A very large carp or maybe a large turtle, I decided. Again I heard it. Sounded like a struggling creature! I was afraid of startling whatever it was, and I turned cautiously. To my amazement and great joy it was an otter: the biggest I'd ever seen in its natural habitat. He had just caught and was beginning to partake of a carp which looked to be about one and a half pounds. Fortunately, the otter was much too involved with his meal to notice me.

Moving at a snail's pace, I sat down on the bank and watched the otter. His table etiquette wasn't a la Emily Post, but he enjoyed his meal—all of that fish. Then, on tiptoe and with my eyes glued to the peninsula where the otter was dining, I moved painfully slowly until I reached the gate braces. I settled down on the post to observe after I had climbed as high as possible.

"Let me entertain you" must surely have been his theme song. Expertly he swam, leaped, dived, and clowned. Barely rippling the water he swam for several yards with only a bit of his head visible. With absolutely no warning he dived and, remaining just below the surface, repeated his yardage.

There was a mysterious smile on his face as he burst through the water. Using the basic patterns of swimming, diving, and tomfoolery he varied the program and continued to entertain until hunger pangs overwhelmed him.

That carp weighed about half a pound; he ate it as if he had been starving for days. For this meal he climbed up on a small stump that jutted up out of the pond. He couldn't have been comfortable because only a part of his midsection was accommodated by the stump. The rest of his body was suspended down the side of the stump and into the water.

He left the stump and swam out into the middle of the pond. Lazily, he swam a bit and rested, dived a couple of times and rested. Then like iron filings being drawn by a magnet he swam my way. When he was about twenty feet away he stopped suddenly, looked me over, formed an opinion, and snorted at me.

Amused, I watched and chuckled to myself. His numerous snorting blows were interesting as well as amusing. Before each one I could hear a whirring sound that seemed to come from the back of his throat and pass over his vibrating tongue before it escaped his mouth. The only comparable sound I know is a low pitched, constant wind passing through two pieces of heavy, rusted roofing tin.

Expertly he swam, leaped, dived and clowned.

Va. State Chamber of Commerce
photo by Flournoy

I had heard that if I mimicked his noises he would copy me. So I decided to try. Each time he emitted a snorting, blowing sound I replied in kind. After five or ten minutes of that he was furious with me. He swam and snorted, snorted and swam, coming closer, then moving farther away. Before he tired of the game he came within twelve feet of me.

Tired from an exhausting performance and the two pounds of carp, he was ready to rest. Rhythmically, regally he crossed to the north side of the pond. He selected a large stump which stood about three feet out of the water. Cautiously, but rapidly, he jumped from the water to the stump. Curling up like a tired tom cat, he began to groom himself. He smoothed his fur after shaking the excess water from his body. Satisfied that nothing was left unaccounted for, he settled himself for a nap. He slept while the wind finished drying him and the sun warmed him. A few minutes later when I left he was still atop the stump, evidently sleeping.

SEASONS IN DISMAL SWAMP

Winter

By ULRICH TROUBETZKOY
Richmond

Lady of the Lake Hunt Club, built over Lake Drummond, is quiet and empty in winter, when hunting season has ended.

THERE is a special quiet in the winter swamp. The slightest movement, the faint rub of lingering leaves, the brush of reeds, even one's breathing seems loud and one's shadow, sharp and conspicuous. An occasional bird shakes the gloss of laurel, holly and looped evergreen vines.

In deer-hunting season there might be this hush, but more often it would be broken by the voices of dogs and the blast of a shotgun as some luckless buck showed his rack in the sunlight.

Some woods become transparent in the winter. The wind loosens and pulls away the brittle leaves and suddenly there is only the stark anatomy of trees and we can look deep into, sometimes through, the woods.

However, in most parts of the Dismal Swamp—not where edges or certain tracts have been tampered with—the shedding of the leaves only adds to the realization of the jungle-thick growth. The dark green arrow-shaped "junipers" (white cedars) stand out against the leaflessness of the other trees. Beyond them one can see further down through the gray winter trunks, but the eye, after being carried just so far, is stopped by the woven wall of trees.

Many of the cypress knees are tinged with green, like the patina on old bronze and, indeed, they very often look like sculptured figures. They are more noticeable in this more ascetic season. There is a whole "gallery" of these "sculptures" in a beautiful grove near Lake Drummond. Some remind one of Biblical figures. Others resemble Oriental carvings. There are also abstract forms that simply suggest whatever you will them to, for this is a wood of fantasy where imaginings take on their own kind of reality.

The deer season is over, the high stands deserted for another year.

On the day after the deer hunting season ended, the swamp was still. The high stands in the trees were empty. There were no red-capped, plaid-coated hunters waiting by the log bridges. I walked alone along the ditch, except for an occasional explosion of birds from a nearby bush or the crackling of twigs made by some unseen companion in the thick brush. Not long after I had walked by a high seat near the Cross Canal, a bear came lumbering out onto the path.

After awhile one gets the feeling that the woods are full of creatures watching. They don't blunder into you, but they seem to know when the hunting is over. You may see a deer crossing way up or down the road. Occasionally, even a bobcat may scoot across the path in daylight. Late in the day, if you are quiet enough, and lucky, you may spy a raccoon. If you climb one of the stands and watch, you will probably see an otter or a mink swimming. You may catch a glimpse of a swamp rabbit.

The Dismal Swamp is so near the coast, it seldom gets very heavy snows, but any snow looks deeper in the swamp. It piles up on the tangled vines, the big roots and fallen trees in such a way that it creates an illusion of great volume. Step on it and you may find there is depth all right—right down through the superficial brush and between the roots into the peat swamp. Grab a branch and get out of there.

When it snows, you may be surprised to see just how unalone you are in the swamp. You may not be fortunate enough to see who made the tracks, but you will know who has passed—a heavy in-toeing bear, a baby-fingered 'coon, hunting 'cat, hunted "pond toes" rabbit, sharp-hooved doe, pronged buck, fawn dents, and nervous birds who have left a pattern on the snow of delicate interlacing prints.

There are probably a few other people in the winter swamp, although you may not be aware that they're there. They are about their part-time business of trapping, perhaps checking their sets for mink and otter. There used to be people who could make a living from trapping, but the

market has not been good lately. (For one thing, the United States has been flooded with inexpensive furs from various northern countries.) One of the Portsmouth trappers said he had got some beautiful raccoon and mink, but he wasn't bothering to do anything with the skins because muskrat was bringing only about $1.25 and mink, only a few dollars.

Supervising Warden Shelton Rountree, of Suffolk, says the hardest day's work he ever did was picking up traps set out illegally early in November some years ago. He caught the out-of-season trapper but, after receiving the summons, the trapper got on a bus and left the state.

The last of the real old-time trappers, named Evick, died recently. He had made a living at it, setting mostly for muskrat and mink in the marshes. Rountree enlisted Evick's help and together they found every one of the 16 sets on the illegal trapline. They walked from sunrise to dusk, wearing hipboots, for they were in the water most of the time.

All of the traps were under water and they had to find where the trapper had stopped in the mud. Whenever they came to a trap, they'd use a stick to probe under the bank roots and throw it. The trapper had been to his traps the day before and they were spread out two miles, all set in boggy, grassy, reedy places. Since Rountree wanted the traps out of the woods—deer hunters had complained about dogs being caught—it was a big help to have Evick who knew exactly how they were set and just where to look. "At the end of every little 'coon or 'rat trail, you'd find a trap."

Wallace Williams with bobcats trapped on Portsmouth Ditch side of Dismal Swamp.

Joe Barnes has been trapping in the swamp "from the time I was big enough to tote a trap and Daddy would trust me with little short lines." He had his own lines after he was 12 or 13. When he was 16 he stayed all one winter on the Portsmouth Ditch in a 12 by 14 tent, with one dog, steel traps and a canoe. Fur was high in 1929 and he cleared over $1800.

Barnes led a hermit's life, with his dog, doing all his own paddling, cooking and going to his traps every day. A week before the season, he would begin cutting trap trails in the swamp, and he would set a few traps each day until the whole line was cut. He used a horseshoe line so that he always came out to the Portsmouth Ditch. There were water sets for mink and otter.

Game Warden Supervisor W. S. Rountree, John Lynn and Warden E. E. Walters swap swamp stories at the edge of Jericho Ditch.

After the season, he'd go to Chicago to auction off his pelts, the first-class ones, that is. Kits and damaged ones he sold locally. He remembers that in Chicago he dealt with the Rodgers Fur Company, the F. C. Taylor Fur Company and the Fuchs Fur Company; in Virginia, with Rice of Norfolk, and the Virginia Hide, Tallow and Fur Company.

In those days he was trapping mink, otter, 'coon, muskrat and opossum. "If it weren't for trapping, I don't know what we'd have done in Hoover days. That's the only thing I can say for Hoover." Muskrat was bringing $1.75 to $3; mink, $5 to $9; and otter, $20 to $40. Plenty of wildcat, too, were caught.

Barnes remembers trapping during the big snow of March 1927. He had dried beans and hard meal, and had to live on the wildlife he could get. He recalls that he killed a goose and shot two or three squirrels. He "couldn't paddle out with all that ice" and so he spent two weeks in

(Continued on page 19)

Should We Manage the Black Bear?

By E. V. RICHARDS
Wildlife Staff Assistant
George Washington National Forest

TO many people the black bear is a prized hunting trophy. An animal worthy of management. To others it is a nuisance animal, causing much economic damage, and represents an animal whose populations should be reduced at every opportunity. To another group, it is a recreation asset worthy of protection.[1]

The U. S. Forest Service, being the largest landowner in southeastern United States, is often faced with the question, "Should we manage the bear?" Being land managers of over 11.7 million acres, we feel this is a logical question.

First, we must know the status of the black bear in this area. A study made in 1961[2] revealed that black bear were found in 11 southeastern states. Four states considered the bear a game animal with a legal hunting season. Seven states indicated it a non-game animal. In some areas its status is listed as rare.

North Carolina, Virginia, Florida, Georgia, Tennessee, and South Carolina represent the six highest bear population states in the Southeast. These areas contained an estimated 10,000 bear, with a harvest by hunters of 1500+ per year.

Black bear in Virginia occur generally in two distinct, separate areas. Bear are found in the rugged Appalachian and Blue Ridge Mountain areas, and also inhabit the piney woods tidewater swamps, such as the Dismal Swamp.

In Florida "a mixture of flatwoods, swamps, scrub oak ridges, bay head, and hummock habitat, thoroughly interspersed, makes the best black bear range. Bear habitats consisting of these vegetative types possess the most varied food conditions in great abundance."[2]

Bear are found in the Southeast where dense thickets of predominantly hardwood growth are found, which offers the necessary protection from man and dogs. It is an omnivorous feeder, eating both plant and animal life. However, the animal definitely has preferred food upon which he is heavily dependent.

Having a low breeding potential, the bear builds up huntable populations only where extensive range exists which provides food, isolation, and escape cover needed.

Bear are reported to reproduce at age 2 and then every other year. Young number two, three, or four. Male bear are believed to be sexually mature at two or three years.

To manage an animal we must study the habitat requirements of the bear. Studies and research on bear have been numerous, but little has been done on the critical habitat needs of the animal. Much is known about its widespread movements which, in Virginia, have covered as much as 95 miles in one year. Life history and feeding habits have been frequently studied. The economic value[3] of the animal to sportsmen is well documented.

Available research indicates black bear in the southeastern states are heavily dependent upon hard mast (acorns and various nuts), which comprise much of its fall and winter food supply.

Florida research[2] indicates 93 percent of all food consumed by bear during the fall and winter was vegetable matter. Nearly 50 percent of all food consumed was acorns.

Courtesy U. S. Forest Service, Harrisonburg

To many people the black bear is a prized hunting trophy.

A five-year Virginia study[1] revealed that 62 percent of the animals' fall and winter diet was acorns, red oak, and bear oak in particular. Blueberries, black gum, and greenbrier also were key foods, making up 17 percent of the winter food consumed.

A Maine study[4], in 1955, indicated beechnuts represented 33 percent of all fall food consumed.

From a review of literature, the importance of hard mast, such as acorns and nuts of various kinds, as a fattening food cannot be ignored. Such food conditions the animal for its period of winter sleep.

A key habitat requirement for Virginia bear is a variety of oaks, at all elevations, particularly bear or scrub oak, *Quercus ilicifolia*. This tree, common on many barren, rocky

[1] Stickley, Allen R., Jr., 1957, *The Status and Characteristics of the Black Bear in Virginia*, M.S. thesis VPI (unpublished).

[2] Harlow, Richard F., 1961, *Characteristics and Status of Florida Black Bear*, Trans. 26th North American Wildlife Conference.

[3] Davenport, Leslie B., Jr., 1953, *Agricultural Depredation by the Black Bear in Virginia*. Journal Wildlife Management, Volume 17, Number 3.

[4] *The Black Bear and Its Status in Maine*, 1955, Game Div. Bulletin 4, Maine Department of Inland Fisheries and Game, Augusta, Maine.

ridges and mountaintops in Virginia, forms extensive thickets, affording excellent food and cover. In the coastal, swamp-type bear range, black gum, swamp white oak, willow oak, scrub oaks form the chief fall and winter foods for Virginia bear.

Prime black bear habitat in mountainous Virginia appears to require: 1. Extensive inaccessible areas, with a minimum of human disturbances and few permanent roads. 2. Upland oak forest type, which offers a variety of food and makes up a large portion of any bear habitat.

The component of bear habitat offering protection from man and dogs is of prime importance. It may take the form in mountainous areas of: 1. bear oak, mountain laurel thickets; 2. dense rhododendron thickets, with mixed hardwoods; 3. extensive spruce, balsam, heath-type mountaintops. Dense swamps, interlaced with bay heads and hardwood ridges, offer the same protection in eastern states.

Another feature of Appalachian Mountain bear habitat is the close proximity of mature hardwood stands to the areas used for protection. Investigations have shown that the upland hardwood type is favored by black bear during all seasons. Younger upland hardwood stands are needed to provide the sun-loving trees and shrubs that produce soft

Bear hunting develops rugged men and rugged dogs. Davis Hess, Bridgewater, handles his pack in the Briery Branch area, Rockingham County, on the George Washington National Forest.

U. S. Forest Service photo

mast, such as cherry, serviceberry, thorn apples, viburnums, dogwoods, persimmon, and black gum. Mature hardwood stands, especially cove hardwood types, are important sources of acorns and nuts. Thickets of grape and greenbrier are also key feeding spots.

Any manager of large land holdings in the Southeast might consider the pros and cons of managing black bear and ask himself such questions as:

1. What is the recreation value of the bear? Is it looked on as a game animal or as a non-game animal, hunted as a sheep killer, a destroyer of crops, bee hives, or a pest in recreation areas? If it is classed as a non-game animal with a year around season, effective management becomes difficult.

2. Does the area include large blocks of suitable black bear range? This is important!

3. Is the population stable, increasing, or decreasing? Is the bear so rare it is only a unique animal which should be protected?

4. What is the value of bear to the area's economy?

All these considerations must be made by the land manager prior to deciding if the bear is to be perpetuated and whether modifications in his land management, particularly timber cutting, are desirable and needed.

An individual black bear has a normal range of many square miles. So in order to effectively manipulate the forest habitat to benefit this animal, we must think in terms of a larger area of habitat than we would in managing squirrels, grouse, or even deer.

Stands or groups of timber stands are too small. On national forest lands entire watersheds, which may contain many thousands of acres, are used for planning.

Virginia's national forests are under a system of timber cutting called even-aged management. Basically, this means that stands of timber be regenerated as a unit, rather than on an individual tree selection basis. These units may vary from 40 to 200 acres in size.

The Forest Service modifies and coordinates timber and wildlife management to favor black bear where necessary by:

1. Keeping the majority of the prime bear habitat in upland oak stands.

2. Retaining scattered stands of mature oaks especially on high ridges. Such oak stands often escape late spring freezes which affect low lying areas.

3. In key black bear areas, limiting conversion of hardwood stands of pine to lower elevations.

4. Keeping the portion of the bear habitat used by the animal for escape and protection intact; avoiding or limiting permanent roads in the area. This is important!

5. Shape of regenerated area should be linear to produce more "forest edge."

6. Scattering timber regeneration areas.

A forester, thinning a timber stand and deciding which of the remaining trees are to be the harvest or crop trees, should, where possible, favor trees of the red oak group over trees of the white oak group, two to one. This is desirable since red oaks yield more acorns and are more dependable on the average than the white oaks.

The forester should recognize mountain laurel and bear oak thickets as "key" bear escape and feeding areas. In cases, where bear oak is being shaded and crowded out, he should consider the removal of the overstory trees, and where established apple orchards, bear wallows, waterholes show heavy use by bear, modify timber cutting.

Direct habitat improvement programs by the states or Forest Service to benefit bear are not recommended. Wildlife clearings have little effect on this animal. Natural food trees or planted trees are of greater importance, however. Waterholes, where lacking, are justified. Also, protection of known denning sites is important. The manager of large land holdings can modify timber management practices to protect and favor bear if he wishes.

What the status of the bear will be in 10, 20 years is hard to predict. In many areas of the East, the bear may only be able to maintain a toehold in the face of civilization, filling a small niche in the forest habitat as a rarely seen but unique animal. Many people will come to know the bear only as a zoo animal.

Forest Service and other managers of large land holdings in the Southeast may well wish to consider the status of this animal in planning their timber management practices in forested areas which represent prime black bear habitat.

Report on the Shenandoah

By EUGENE W. SURBER
Research Biologist

ALTHOUGH it has hardly had time to produce maximum benefits, the 12-inch size limit on bass in the Shenandoah River already has resulted in more and bigger smallmouths in anglers' creels, better fishing for other species, and a generally improved fish population balance. This rich and productive sport fishing stream, the fabled Shenandoah, appears to be back in excellent shape, with even further improvement in prospect.

In *Virginia Wildlife* of December 1965, the results of the first year (1964) of a study of fishing pressure on the Shenandoah River were reported. During 1964 it was estimated that the 102 miles of the South Fork of the Shenandoah River from Port Republic to Riverton had supported 292,000 fisherman hours of fishing, while the 34 miles of the Main Stem from Riverton to the Virginia-West Virginia state line were visited by fishermen for a total of 65,000 hours.

Since that report, two additional years of fishing pressure data have been collected and analyzed. During these two years, severe drought conditions prevailed in the Shenandoah Valley as during 1964, but in spite of the adverse river flow conditions, fishermen continued to fish the river, and to catch fish. River conditions during June, July, August and September in both 1965 and 1966 made float fishing difficult.

Fishing pressure was determined by aerial counts, made between May 1 and October 31, of fishermen fishing from boats, from the bank, or wading within five sections of the river located as described in Table 1. The aerial surveys covered 35 miles (34.2 percent) of the South Fork and 22 miles (62.8 percent) of the Main Stem of the Shenandoah River in Virginia.

Table 1. DESCRIPTION OF RIVER SECTIONS STUDIED

Section	Location	Length in Miles
A	South Fork of Shenandoah River Rt. 340 Bridge below Shenandoah, Va., to Route 340 above Alma.	9.0
B	South Fork of Shenandoah River Riffle at Golden Rock (Compton) to Bentonville Bridge (Rt. 613).	10.5
C	South Fork of Shenandoah River Bentonville Bridge to Riverside Bridge (Rts. 613-619).	15.3
D	Main Stem of Shenandoah River Morgan Ford Bridge to Byrd Bridge (Rts. 624-50).	11.0
E	Main Stem of Shenandoah River Byrd Bridge (Rt. 50) to Watermelon Park at Shepherds Ford.	11.0
	Total	56.8

In 1965 and 1966, approximately ten airplane flights per month were made over these five sections of river to count fishermen. They were made on a statistically randomized schedule and according to a statistical design[1] in which certain weekend days, including Wednesdays when many persons have half days off from work, as well as weekdays, were selected at random for the counting of fishermen. The times of day for making these counts were also selected randomly after taking into consideration the length of day and the time required to make a flight. Based on the number of fishermen observed from the air and the reports

[1]Furnished by Dr. Don Hayne, Institute of Statistics, North Carolina State University, Raleigh, North Carolina.

Table 2. ESTIMATED FISHING PRESSURE ON RIVER SECTIONS SAMPLED BY PLANE FLIGHTS

—Number of Hours—

Year	May	June	July	Aug.	Sept.	Oct.	Total	Fishermen Hours per Mile
			SOUTH FORK					
			Section A—Above Alma (9.0 Miles)					
1964	8,001	4,277	8,758	2,638	2,352	371	26,397	2,933
1965	5,621	5,251	8,704	1,453	1,457	908	23,394	2,599
1966	5,702	2,776	3,880	3,351	1,564	544	17,817	1,980
			Section B—Compton (10.5 Miles)					
1964	6,587	6,147	6,554	5,663	4,351	189	29,491	2,809
1965	3,678	6,875	7,703	2,024	2,628	1,033	23,941	2,280
1966	5,070	4,003	3,926	6,639	2,876	482	22,996	2,190
			Section C—Bentonville Bridge (15.3 Miles)					
1964	12,761	4,510	8,209	7,526	8,728	557	42,291	2,764
1965	9,697	10,460	9,548	3,745	4,480	1,707	39,637	2,591
1966	6,737	6,085	8,474	8,001	3,620	1,108	34,025	2,224
			MAIN STEM					
			Section D—Morgan Ford (11.0 Miles)					
1964	6,272	2,623	3,808	3,078	2,119	371	18,271	1,661
1965	3,705	2,942	3,700	1,448	920	55	12,770	1,161
1966	2,672	2,004	3,115	3,823	1,416	0	13,030	1,185
			Section E—Byrd Bridge (11.0 Miles)					
1964	10,192	2,319	3,371	4,139	2,488	742	23,251	2,114
1965	4,523	4,152	4,887	1,400	1,930	1,267	18,159	1,651
1966	2,229	1,809	3,241	3,503	1,269	289	12,340	1,122

of creel clerks and voluntary reports by interested fishermen, estimates of total hours of fishing and total catches of fish were made in each of the 1964, 1965, and 1966 seasons.

In three of the river sections described in Table 1, Sections A, B, and E, red mail boxes, measuring boards, and angler report cards were provided at access points for the use of those fishermen interested in helping out on a purely voluntary basis. Many took the time to fill out the cards which showed the kinds, sizes, and number of fish caught, as well as the number of hours fished. Creel clerks were employed in each of the five sections to record the above information on completed trips. Their reports of kinds of fish caught and number of hours of fishing are an important basis for the estimation of total hours of fishing and total catch per hour.

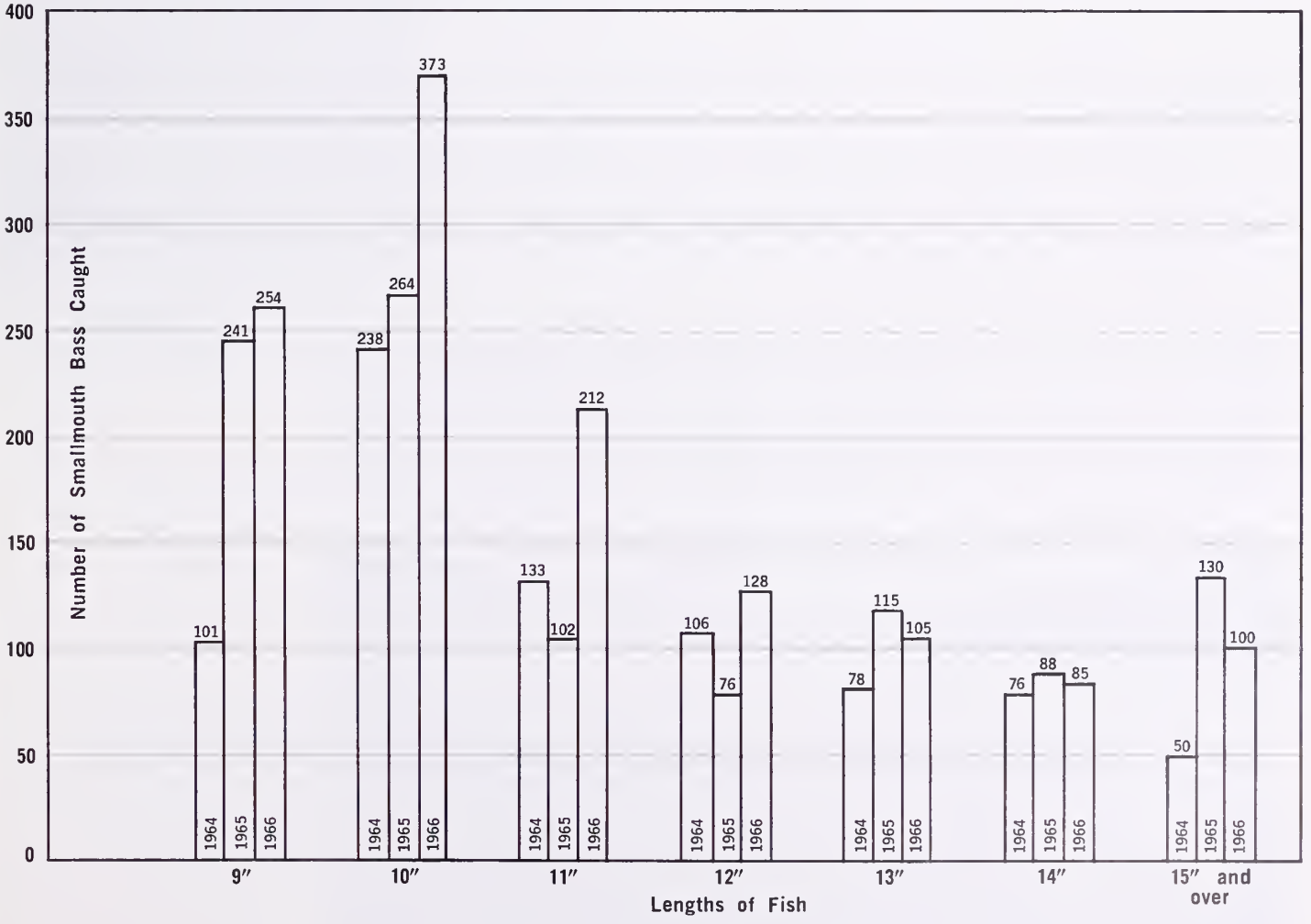
Estimated total hours fished in all five sections in 1964 when there was no size limit on smallmouth bass, or other species of fish, was 140,000; 118,000 in 1965; and 100,000 in 1966. The aerial surveys, therefore, show declining fishing pressure during these three years, each of which has been a drought year. It remains to be seen how seasons of normal rainfall will affect the fishing pressure.

Table 2 furnishes estimates of the total fishing pressure by months (May through October) for each fishing season 1964 through 1966 in each of the five sections. The months of heaviest fishing pressure were usually May and July. The table shows that the number of fisherman hours per mile of stream has been declining gradually each year.

The total estimated fishing pressure on the Shenandoah River based on plane flights only is given in Table 3. The reasons for the gradual decline in fishing pressure since 1964 are not yet apparent. Perhaps the droughts of the three years have had something to do with it. In 1964, fishermen could keep bass of any size, whereas in 1965 and 1966 a 12-inch size limit was in effect. Without a bass size limit, the Shenandoah River was rapidly becoming a catfish, redhorse sucker, and carp stream. A greater predator population was needed, and fishermen were complaining that smallmouth bass of respectable size could no longer be caught. The imposition of the 12-inch limit may have caused fishermen temporarily to go elsewhere than the Shenandoah, because there were so few bass large enough to keep. Figure 1 illustrates an improvement in this situation. This figure is based on the total number of smallmouth bass nine inches and more in length caught in the five sections where creel clerks are employed to measure fish and record the total hours fished. The data shows that there has been a progressive increase in the number of 10- and 11-inch smallmouth bass, which is very beneficial to the sport fishing potential of the river.

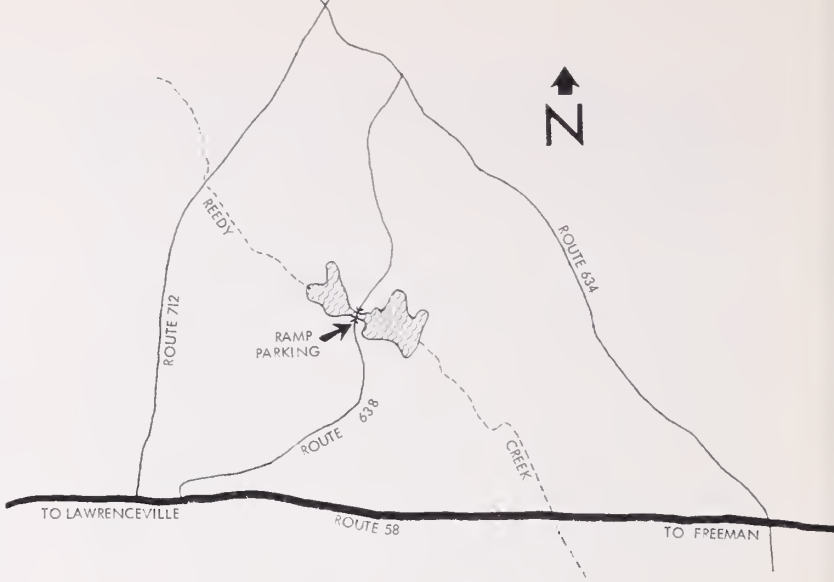
(Continued on page 17)

Figure 1. CATCHES OF SMALLMOUTH BASS IN FIVE SECTIONS OF THE SOUTH FORK AND MAIN STEM SHENANDOAH RIVER— A, B, C, D, and E



COMMISSION-OWNED LAKES:

Lake Brunswick



By H. L. GILLAM
Information Officer

ANGLERS looking for some early season excitement should try Lake Brunswick near Lawrenceville beginning in the latter part of March. Crappie, which form about one-fifth of the fish which come from this 150-acre lake, hit their peak in April and May, but enough are caught before and after this period to whet the angler's appetite. Pickerel also cooperate well with early-season anglers with peak activity occurring in April. Bass and bluegills, which supply the bulk of the fishing, are best in May and June.

The lake is located east of Lawrenceville just north of Route 58 via Route 638. It is located in a typical hardwood forest setting and contains dark stained waters typical of eastern Virginia lakes. There are a few cattails and water lilies, but most of the lake is clear of angling obstructions. The lake was built in 1955 and renovated and restocked in 1963.

There are no boats for rent at the lake but a ramp is provided for launching private boats. Fishing supplies and bait may be obtained in Lawrenceville. The watershed of the lake is greater than ideal for proper fertilization, but the lake is a good producer. Fishing pressure is relatively light with 15 to 20 persons showing up on a good Saturday during the spring and early summer.

Stumpy shorelines like this one yield a bountiful crappie harvest to early-season anglers.

Brunswick Lake is located in a typical hardwood forest setting. Although it is not ideally suited for proper fertilization, it produces good catches for the limited number of anglers who use it.

VIRGINIA WILDLIFE

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CONSERVATIONGRAM

Commission Activities and Late Wildlife News . . . At A Glance

TURKEY KILL SHOWS MARKED DROP. Big Game Tag returns indicate that Virginia's turkey kill dropped to 2,338 last season from the record of 4,040 taken the year previous, a decrease of 42%. The decline was not unexpected, but biologists had hoped that it would not be quite so drastic. Examination of feathers collected at checking stations reveals that adults outnumbered young birds in the kill in many areas, indicating very poor hatching and rearing success last spring. In a good year, juveniles can make up over 80% of the kill.

Nature hit the birds with the coldest May on record last spring, coupled with unusually wet conditions. Abundant acorns and other foods over most of Virginia last fall kept the birds scattered, frustrating hunter attempts to find and bag them.

The five top western counties were Bath with 288 turkeys, Augusta with 147, Botetourt where 141 were bagged, Highland with 133 and Rockbridge with 132 reported. Leading eastern turkey counties included Buckingham with 81, Amelia with 67, Prince William with 54, Fauquier with 49 and Spotsylvania with 47 reported kills. The total bag west of the Blue Ridge was 1,441 turkeys while only 897 were killed in eastern counties. Recovery of the turkey flocks will depend largely on hatching and rearing success this spring.

HUNTING TO BE PERMITTED ON FAIRYSTONE STATE PARK. An agreement between the Virginia Commission of Game and Inland Fisheries and the Department of Conservation and Economic Development Division of State Parks, has paved the way for opening 2,400 acres of Fairystone State Park near Martinsville to public hunting. The park property adjoins the Game Commission's Fairystone Farms Wildlife Management Area near Philpott Reservoir. This will be the first Virginia State park to be opened for hunting under the modern philosophy of multiple use management.

The Commission hopes to have the area properly marked so that it can be opened in time to benefit spring turkey gobbler hunters in April. The area has good populations of turkey, deer and squirrels.

EASTERN DEER KILL HOLDS ITS OWN. Game Commission Big Game tag returns show that hunters bagged 13,259 deer in counties east of the Blue Ridge during the season just ended, only a slight decrease from the 13,520 bagged in this section last year. The leader, Southampton County, dropped from 1,211 animals the previous season to 978 last year, but Caroline County climbed into second place with a total of 786 deer and Sussex maintained its third ranked spot with 780 animals.

Some improvement in the kill from Northern Neck counties was evident with King William County jumping from 326 to 470 deer last season. Bucks-only counties in the southern Piedmont held their own, led by Buckingham where 549 bucks were bagged.

Coupled with the 11,392 deer harvested in western counties during their two-week season, the good success in eastern counties brings the state total to 24,651 deer. This is 5.7% below last year's figure, most of the decrease occurring in western counties. Abundant food which scattered game is credited with at least part of this decrease. Lower hunter pressure was reported in many western areas, especially after the opening day rush.

LET'S EAT O

ALL sport fishing is by no means done with rod and reel. One nice thing about having SCUBA divers in the family is that when they go down in search of pirate treasure they more often than not come up with other jewels of the deep—notably sacks full of oysters!

Man's love affair with the oyster is as old as Time. For witness we have the accumulation of oyster shells found in Neolithic kitchen middens. More than any other food the oyster has inspired poets and artists as well as gourmets, and its praises have been sung everywhere that civilization has spread.

In ancient times, Roman garrisons in Britain shipped Colchester oysters, tightly packed in snow, back to Rome to grace patrician banquet tables there. Probably in spite of this snow-packing the oysters arrived in something less than prime condition, and this refrigeration problem undoubtedly accounts for the highly spiced and sweetened sauces with which the Romans disguised their fish, fowl and meat with equal abandon. One wonders in reading some of the old Roman recipes how they could tell what they were eating!

No one would venture to guess who the first man to eat an oyster may have been, but a number of people would marvel at his ingenuity in figuring out how to open it! Actually, there is no great secret to it. All one needs is a sharp flat-bladed knife and a basic knowledge of the anatomy of the bivalve. One holds the oyster with the flat part of the shell uppermost, and inserts the flat blade of the knife, point first, into the thickest part of the shell which happens to be the "hinge." Then one cuts. The flat top can now be removed, leaving the oyster with all of its juices in the deep, or bottom part of the shell. This is as far as the French go. They serve the raw oyster thus, allowing the diner to sever the muscle that holds the oyster to the shell. The English and Americans cut this muscle and turn the oyster over in its shell before serving it. Whatever his nationality, the purist stops here. To him, a cooked oyster is a thing of scorn; they should be eaten raw or not at all. He sips the "liquor" first, then swallows the oyster, usually whole, although there are those who insist it should be bitten to obtain the fullest flavor.

Without question, a raw oyster, perfectly fresh, is quite good enough without any adornment. On the other hand, a squeeze of lemon, a touch of cayenne or both serve to enhance its enjoyment for some. Still others like to "dunk" it in a cocktail sauce. A very good one can be made by mixing 1 cupful of hot catsup with 2 or 3 tablespoonfuls of bottled horseradish, a teaspoonful of lemon juice, and a half teaspoonful Worcestershire sauce.

Champagne or beer may accompany raw oysters, and the choice depends solely on the occasion. Americans like small oyster crackers to munch. The classic English way to eat raw oysters is along with good Irish Stout and thin slices of well buttered home-made brown soda bread.

Brown Soda Bread

1 cup corn meal (usually the coarser, yellow kind is used)
1 cup graham flour
1 cup rye flour
1 tsp. soda (saleratus)
1 tsp. salt
¾ cup molasses
1½ cups sour milk

Mix and sift the dry ingredients and stir in the milk and molasses. This is steamed in rather tall cylindrical molds. If you haven't inherited them, I have no idea where you would find any, so I suggest using a number 303 can, such as any canned vegetable comes in. Most of them are "ribbed," which makes it difficult to extract the finished product unless you grease and line them carefully with waxed paper. The taller the mold and the smaller the diameter the better the end product. Fill the cans ⅔ to ¾ full and steam for 2-3 hours. To steam, place a rack in the bottom of a deep kettle, set the cans on the rack and fill the kettle with water to come about halfway up the sides of the cans. Cover and let simmer just under a rolling boil. Test for doneness before removing the cans.

This can be bought in cans as Boston Brown Bread, but be sure that you read the label carefully and get the kind that does not have raisins added! Most of it does.

Tributaries of Chesapeake Bay are among the world's finest natural grounds for oysters. They may grow bigger in other places, but they don't grow any better. Oysters more delicious than those from Virginia waters are hard to find.

Of all fauna, oysters are the most tranquil. They have a special talent for laziness. They like to attach themselves to a rocky bottom and let their food come to them instead of going in search of it. Since they never do any work or take any exercise they never develop any tough, sinewy muscles. Consequently, they are the daintiest and most easily digested food available. That being the case it has always seemed an injustice to limit one's enjoyment of them to the raw state.

One wonderful way to cook oysters is to combine them with sweetbreads and make a pie. It is an elegant dish for a winter holiday buffet. Several old Virginia cookbooks give recipes for such a "pye." I like to make it this way:

'STERS

By MARJORIE LATHAM MASSELIN
Richmond

Sweetbreads and Oysters en Casserole

You will need two pairs of sweetbreads. One is a little "grainier" than the other, but both are equally usable in a dish of this sort. Soak them in cold water for about an hour, then drain and simmer for about 20 minutes in water to cover along with the juice of half a lemon. Blanche in cold water, drain and when cool enough to handle easily, pull them apart in sections (they lend themselves rather readily to this) discarding as you do the membranes and tubes that hold the segments together. Set aside.

Clean a pint and a half of shucked oysters, reserving the strained liquor from them, and simmer the oysters in ½ cupful of butter just until the edges curl. Remove the oysters to the bowl holding the sweetbreads.

Pour the juices in the pan into a measuring cup and let

Commission photo by Kesteloo

the butter rise to the top. Then pour as much clear butter as you can back into the pan. Sauté in this butter a good half pound of tiny, white mushroom caps. Remove these to a separate dish and save in a warm but not hot place. They should not cook any more—simply remain warm enough to serve.

Smooth the butter in the pan with about ¼ cupful of flour, and make a sauce by adding the juices left in the measuring cup and enough cream to make 2 cups. Add 2 teaspoonfuls of snipped chives for both color and mild flavor, and let the sauce "rest" over the lowest possible heat for at least a half hour. It must not boil or it will scorch.

Preheat the oven according to the package directions and bake a package of 6 frozen pâté shells, exactly as directed on the package.

Combine the sauce with the oysters and sweetbreads and turn into a serving casserole. Place the hot pâté shells on top of the creamed oysters, and into each shell pile the mushroom caps. Garnish with fresh, crisp watercress and serve piping hot.

Bringing out the chafing dish is always a special delight in our family, and one easy-to-do family Sunday night supper that makes prime use of the chafing dish is something my grandmother always called Hangtowne Fry. I have no idea where the name originated, but I have never been able to think of a better one. So here it is. It is mighty good eating.

Hangtowne Fry

Since this can be made for as many people as the size of the chafing dish permits, the proportions listed here are for a single serving; simply multiply by the number of people to be served.

Cut 1 or 2 mildly flavored skinless sausages into thin slices. If you have some freshly made sausage meat, so much the better; make about ½ cupful of very small balls of it per person. Fry these slowly until they are nicely browned and all the fat has been "tried" out of it. Push them aside, drain off all the sausage fat, and then add 2 or 3 tablespoonfuls of butter. Let the butter melt and simmer in it 1 cupful of very small fresh oysters that have been meticulously cleaned of any shell fragments. Just as the oysters begin to crinkle, push the sausage bits over into them and mix. Have ready 1 or 2 fresh eggs, the number depending on their size and your appetite, which have been beaten with a fork and to which you have added a tablespoonful of water or, if you prefer it, light cream or milk. The water produces a yellowish color, whereas the milk or cream "pales" the natural color of the eggs. Scramble all together and serve on slices of hot, crisp, well-buttered toast.

Everybody who likes oysters has a favorite recipe for oyster stew, and they will all agree that there is nothing more heart warming on a cold winter evening than a soup tureen filled with this steaming brew. This one takes a little longer to concoct, but it is well worth the extra effort.

Oyster Stew

As in any fish stew, a good, rich fish stock should be used for the base. In the case of an oyster stew the stock should be mildly flavored; the best thing to use for the stock is a nice fresh cod head or two. In this part of the country, cod is a less popular fish than elsewhere, and in lieu of it one may use instead the heads and trimmings from fresh flounder which one has filleted. Simmer in water to cover with a slice of mild onion, salt and a very small segment of chili pepper. Strain carefully and reduce to about 2 cups.

Clean about 50 oysters, reserve the liquor to add to the stock, and simmer the oysters in ¼ pound of butter. Remove the oysters, and add about 3 or 4 tablespoonfuls flour to the butter. Cook this roux until it is perfectly smooth but not at all browned.

To this roux add the oyster liquor and the stock, together with sufficient milk to make a quart. Let it come to a boil but not past the boil. Add the oysters and a pint of cream—heavy or light depending on the size of your waistline and/or your desire to control it.

Correct the seasoning if necessary and add just a touch of mace—an eighth of a teaspoonful. Pour into a preheated soup tureen, and dust the top with paprika. Put in a sizeable lump of butter to melt on top and serve with plenty of crisp, dry crackers.

There is nothing to equal a steaming oyster stew for supper from those first frost-bitten autumn evenings right on through the winter and the bone chilling rains of early spring. It warms the heart and the soul as well as the stomach.

Hawks Aren't Bad

By ILEEN BROWN
South Boston

THE fierce and bold hawk flies lazily above fields and meadows, screaming loudly as he hunts for food. His only desire is to satisfy his hunger, but in doing this he also accomplishes a service to man. All hawks destroy harmful insects and rodents.

While their diet will sometimes consist of rabbits, squirrels, birds, chipmunks and even chickens, it is believed that only a few individuals are guilty. Even with these their good qualities outweigh their bad ones. Songbirds and small animals which hawks eat are usually the weak and sick, or the abundant ones. By destroying some, hawks help keep a healthy wildlife balance. It is also believed they keep our game birds, such as dove and quail, alert and swift. It is believed where predators aren't present, birds become unafraid and slow. The naturalist Aldo Leopold implies it is impossible to love game birds and hate predators.

Yet with all these good qualities the hawk is perhaps the most distrusted member of all the bird kingdom, and to many they are here for only one purpose—to be shot.

Forty-four states, including Virginia, have laws protecting hawks. Some states exclude the goshawk, Cooper's and sharp-shinned from this protective group, although conservation organizations are conducting a campaign to have all hawks protected.

In William O. Douglas' book MY WILDNESS EAST TO KATAHDIN, he tells of watching a sharp-shinned hawk appear out of the sky and pick up an English sparrow, take it to the ground and kill it. He states the first thought is to kill the hawk and protect the bird, but then he says there is more involved than just the hawk and the sparrow.

The hawk family tree is a large and complicated one, with many species and subspecies. There are at least fifteen different hawks native to Virginia alone.

Hawks of the Accipiter group, which includes sharp-shinned, Cooper's, and goshawk, are among the few hawks that kill a number of birds. The sharp-shinned, although no larger than a blue jay, will attack birds from the size of the tiny chickadee to the much larger flicker. While the sharp-shinned seldom bothers full grown chickens, he finds the young ones tasty tidbits.

Cooper's prefers medium-sized birds such as doves, along with squirrels and chipmunks.

The goshawk will kill birds as large as the grouse. He will chase on foot rabbits, chickens and other prey. He has been known to snatch a bird almost from beneath a hunter's feet.

The "terrible three," as this group is often erroneously called, are fast and secretive. They prefer wooded areas as their hunting ground. Their short, rounded wings make it possible for them to weave through twigs and branches as they chase their victims.

Hawks of the Buteo group are the broad-winged birds of prey that we often see flying lazily overhead. To many these are known only as chicken hawks, and these are the hawks that are shot most often. Yet these are the more beneficial ones. They live almost entirely upon harmful rodents.

Among this group are the Harris, red-tailed, red-shouldered, short-tailed, Swainson's, short-winged, broad-winged and sparrow hawk. The gentlest bird of this group is the Swainson's hawk. This Western bird will nest on the ground, bushes and tall trees. He lives in such perfect harmony with his neighbors that the Arkansas kingbird will sometimes choose to build his nest beneath or on the side of the hawk's nest.

Commission photo by Harrison

Hawks feed mostly upon rodents. Their predation is an essential element in nature's system of checks and balances.

The sparrow hawk, a true falcon, is our smallest hawk. Often we see him perched on telephone wires or hovering over the grass like a hummingbird. The sparrow hawk's name is misleading, for he seldom eats sparrows, but feeds almost entirely on insects.

The marsh hawk belongs to the harrier group, and is the only hawk in the United States that regularly nests on the ground. He builds his bulky nest in a tangle of weeds. The marsh hawk frightens his prey out of hiding by flying back and forth just above the weeds. When he spots his prey he will stop abruptly, almost as if he had run into a wall. He then hovers for an instant and plunges upon his victim.

Marsh hawks are easy to spot by their low flying, and by the white feathers above the base of the tail. In the spring they are found in pairs, but after the young are able to fly they usually hunt in family groups. Often as many as 20 to 50 will flock together.

Hawks migrate in late September for the southern states and Central America. Those that have seen a migration say it is quite a spectacle. Thousands will gather along mountain ridges where the updraft permits them to soar effortlessly on their way.

In the spring, hawks often return to the same area, and usually they use the same nest. They will make additions each year until the nest is a large and bulky affair. They raise one brood a year, although they will lay a second set of eggs if the first are destroyed. When the young hatch after about four weeks' incubation period, they are partly covered with down, but by the time they leave the nest they are fully feathered.

The young are big eaters, and they keep their parents busy searching for food. It has been noted that an average pair of marsh hawks raising a family of young will destroy 1,000 field mice during the nesting period.

Man, the raccoon and the great horned owl, are the hawk's greatest enemies.

Table 3. ESTIMATED TOTAL FISHING PRESSURE ON THE SHENANDOAH RIVER 1964 TO 1966, BASED ON PLANE FLIGHTS

Section	Miles of River	Total Fshermen Hours 1964	1965	1966
SOUTH FORK				
Port Republic to Hamburg-Luray	51.0	149,583	132,549	100,980
Hamburg-Luray to Riverton	51.0	142,137	125,664	112,710
Totals	102.0	291,720	258,213	213,690
MAIN STEM				
Riverton to Morgan Ford	6.9	11,461	8,011	4,092
Morgan Ford to Byrd Bridge	11.0	18,271	12,771	13,035
Byrd Bridge to Watermelon Park	11.0	23,254	18,161	12,342
Watermelon Park to Va.-W. Va. Line	5.9	12,473	9,741	6,620
Totals	34.8	65,459	48,684	36,089

Table 4 furnishes the estimated total catch of smallmouth bass in the South Fork and in the Main Stem for all sizes of bass, and in 1965 and 1966 for legal-sized smallmouth bass 12 inches or more in length. In 1964 there was no size limit. The data for the South Fork in most instances indicate a decided *upward trend* in the population of smallmouth bass of all sizes since the 12-inch limit was adopted. The methods of collecting statistics in 1965 and 1966 were identical; therefore, a greatly increased smallmouth bass population in these years is attributed in the South Fork to the 12-inch size limit. The data for 1965-1966 shows declining smallmouth bass populations in the area of the Main Stem between Riverton and Byrd Bridge, where a large fish kill occurred in 1966 due to pollution.

The catches of sunfish (mostly redbreast sunfish), locally called "perch" or "bream," catfish (mostly channel catfish), and other species of fish were also recorded by the creel clerks and our fishermen cooperators. Their estimated total catches of fish have been summarized in Table 5. The data indicates a substantial increase in the catches of sunfish

(Continued on page 18)

ACKNOWLEDGMENTS

The writer is indebted to the anglers who have contributed more each year to this study by filling out anglers' catch reports left for them in red mail boxes at access points on the river bank. He is also indebted to the several creel clerks for the sometimes thankless task of soliciting reports of completed fishing trips. Robert Brooks has been the job leader's aide in this work, and Miss Lucy Minogue, biology student at Virginia Polytechnic Institute, has aided in the compilation of tables, laboratory work, and typing of reports. Wardens Blake Denny, Jim Simpson, Dave Ramsey, and Skip Inskeep have contributed much needed aid at times to the program.

Contribution from Dingell-Johnson Project F-14-R, Job no. 2, Smallmouth Bass Stream Investigations, Shenandaoh River Study.

Angling pressure is measured by aerial surveys. Success data is recorded by creel clerks, and by cooperating anglers who use the red mail boxes, measuring boards, and report cards placed at access points along the river.

Table 4. ESTIMATED TOTAL SMALLMOUTH BASS CAUGHT IN SOUTH FORK AND MAIN STEM, 1964 to 1966.

Section	Catch of Smallmouth Bass All Sizes 1964	1965	1966	Catch of Smallmouth Bass Legal Size 1964[1]	1965	1966
SOUTH FORK						
Port Republic to Hamburg-Luray	43,707	29,824	70,988		7,824	7,170
Hamburg-Luray to Riverton	7,293	21,362	85,998		4,147	3,945
MAIN STEM						
Riverton to Morgan Ford[2]	9,522	6,889	1,575		6,889	597
Morgan Ford to Byrd Bridge[2]	1,518	10,983	5,018		10,983	1,903
Byrd Bridge to Watermelon Park	2,178	11,133	10,009		1,796	4,690
Watermelon Park to Va.-W. Va. Line	1,168	5,971	5,369		964	2,516

[1]No size limit on smallmouth bass in 1964.
[2]Undersized bass not recorded in Section D in 1965.

Table 5. CATCHES OF SUNFISH, CHANNEL CATFISH, AND ALL SPECIES IN THE SHENANDOAH RIVER, 1964 TO 1966.

Sunfish			Channel Catfish			All Species			
1964	1965	1966	1964	1965	1966	1964	1965	1966	
				SOUTH FORK					
				Port Republic to Hamburg-Luray					
41,055	20,675	39,786	26,010	10,736	9,189	118,116	87,482	142,483	
				Hamburg-Luray to Riverton					
6,222	20,609	28,516	11,526	26,892	16,794	26,622	75,763	89,717	
47,277	41,284	68,302	37,536	37,628	25,983	144,738	163,245	232,200	TOTALS
				MAIN STEM					
				Riverton to Morgan Ford					
2,180	7,209	3,904	6,900	12,722	8,127	10,350	23,203	14,621	
				Morgan Ford to Byrd Bridge					
3,476	11,516	12,435	12,947	20,321	25,888	21,263	37,065	46,574	
				Byrd Bridge to Watermelon Park					
3,883	3,506	1,617	9,889	8,919	9,121	19,459	32,696	22,820	
				Watermelon Park to Va.-W. Va. Line					
2,083	1,879	867	5,304	4,781	4,892	10,437	17,528	12,240	
11,622	24,110	18,823	35,040	46,743	48,028	61,509	110,492	96,255	TOTALS

and a considerable decline in the catches of catfish in the South Fork. It remains to be seen whether an increasing adult population of smallmouth bass will continue to cause a further reduction in numbers of catfish.

The Table 5 data indicates a decline in the sunfish population in the Main Stem of the Shenandoah, except in the Byrd Bridge area. Channel catfish catches overall have increased in the Main Stem.

When all species caught per unit of effort are taken into consideration, more fish were caught in the South Fork in 1966 than in 1965 or 1964. The catch of all species in the Main Stem during 1966 declined somewhat over the 1965 catch, but was still greater than that of 1964.

The data in Table 4 showed that the river's smallmouth bass population in the South Fork sharply increased in 1966; and Figure 1 showed that anglers were catching more 9-, 10-, 11-, and 12-inch smallmouth bass in 1966 than in 1964 and 1965. However, the most encouraging situation is revealed by Table 6, which compares the catches per hour of smallmouth bass, channel catfish, and sunfish ("perch") during the three years. The catch per hour trend for all-size and for legal-size smallmouth bass is definitely upward. There has been a gradual upward trend in catches of sunfish in all of the five sections of river studied. On the other hand, there has been a reduction in catches per hour of channel catfish in the South Fork, which is considered beneficial because of the possible competition between this species and the smallmouth bass.

The sport fishing potential of the river is excellent at present, particularly in the South Fork. The 12-inch limit is believed to be responsible for it.

Table 6. CATCH PER HOUR OF SMALLMOUTH BASS, CHANNEL CATFISH, AND SUNFISH IN FIVE SECTIONS OF SHENANDOAH RIVER—A, B, C, D, AND E

(Based on Creel Clerk Data)

Smallmouth Bass All Sizes			Smallmouth Bass Legal Size			Channel Catfish			Sunfish		
1964	1965	1966	1964	1965	1966	1964	1965	1966	1964	1965	1966
					SOUTH FORK						
					Section A—Above Alma (9.0 Miles)						
0.230	0.140	0.685		[1]0.048	0.071	0.164	0.067	0.081	0.270	0.051	0.387
					Section B—Compton (10.5 Miles)						
0.147	0.016	0.663		0.010	0.016	0.196	0.241	0.160	0.110	0.172	0.295
					Section C—Bentonville Bridge (15.3 Miles)						
0.147	0.062	0.641		0.037	0.033	0.196	0.181	0.122	0.110	0.155	0.232
					MAIN STEM						
					Section D—Morgan Ford (11.0 Miles)						
0.136	0.085	0.384		0.085	0.144	0.909	1.592	1.986	0.247	0.901	0.954
					Section E—Byrd Bridge (11.0 Miles)						
0.127	0.703	0.705		0.092	0.036	0.332	0.979	0.627	0.110	0.118	0.127

[1]No size limit on smallmouth bass in 1964.

Winter in Dismal Swamp (Continued from page 7)

the tent. The ridgepole broke under the weight of the snow and he had to cut another pole.

When Barnes started trapping, as a boy, he says, "An old Negro fellow—looked more like an Indian—Dick Hawk taught me. He was almost 90 and spent all his life in the swamp. His daddy worked in there before the Civil War. He lived on the Hamburg Ditch and looked after the Jordan Brothers lines, as a watchman. He died when he was over a hundred, down around Sunbury. He had married three times and had 18 children."

It was Dick Hawk who showed Barnes how to recognize various tracks, "how to set for 'coon and hide 'em, to bait with fish for 'coon and with rabbit for mink." If he happened to catch a bird in one of his traps, he'd use that for bait. For otter, it was always a water set, that is, with the trap under water. He always tried to put logs on it so they could move around a bit. Once he got his heel in a bear trap. "If it had been my whole foot, it would have broke it in two."

As things used to be in the swamp. An old time juniper cutters' camp, as it was about 50 years ago.

Va. State Library photocopy

The old bear traps used then were outlawed years ago. He caught one of his own dogs by two front feet in one. They used to set guns, "stick 'em down in a log, with the trigger in front, and bait." They also used deadfall log traps, with shingles down the sides.

"I'm glad," Barnes said, "all that is in the past. I don't do much killing now."

"There used to be many trappers in the swamp. Old man Dick Hawk trapped the Riddick Ditch till he had a stroke. We trapped Portsmouth Ditch. The Biddle boy's daddy, Yadkin and Crockett trapped around the canal, Jesse Bass and Sam Perry on the Washington Ditch."

We were out with this "Biddle boy" and Wallace Williams a few years ago when they found a big bobcat in one of their live traps. Barnes says these cats feed on a line. "A wildcat will eat everything, but feet, nose, ears, and bottom lips of a big swamp rabbit. He'll eat your 'coon, but not the tail."

Winter is a good time, too, to sit in front of a warm stove talking about the swamp. With the duck season behind, it is easier to find Supervising Warden W. Shelton Rountree at home and to ask him about 21 years of law enforcement in the swamp.

Most of the time his hours are so unpredictable that his daughter Leah says, "Never look for him till you see him."

Rountree is a native of Gates County, on the North Carolina side of the swamp, where he was brought up on a farm. After serving in the army, he worked briefly as a bread salesman, then went to work with the Suffolk police from 1941 to 1946. He was one of the founders, with Frank Gayle, of the rescue squad and helped to organize the Nansemond County chapter of the Izaak Walton League.

Rountree's favorite sport is squirrel-hunting. However, it was enforcing the law against out-of-season squirrel-hunting in 1953 that resulted in the shooting of Rountree by a poacher at the edge of the Dismal Swamp. Afterwards his left arm had to be amputated. He and the then Deputy Game Warden S. B. Snead were on a routine patrol when they heard a report. They went into a wooded area and Rountree was standing behind a hickory at the edge of a footpath, waiting, when the illegal hunter spied them, mumbled something and shot Rountree in the left arm.

As warden, Rountree worked primarily in Nansemond County, but helped wardens in surrounding areas and sometimes on trout streams in the western part of the state.

The western part of the Dismal Swamp, with which he was particularly concerned, includes Lake Drummond and is made up primarily of lands that belong to Union-Camp Manufacturing Company, except for small privately-owned tracts in back of farms along the Desert Road to North Carolina. Some of these farms run from a half to three-quarters of a mile back into the swamp.

Ironically, some of the people who live on those farms can't tell you much about the swamp. A Mr. Hines, who lives on White Marsh Road, has only been in it once. A lady, who gave me permission to go into the swamp on her property, asked what it was like at Lake Drummond. Of course there are also men like Rudolph Badger who know a great deal about the swamp, and we hope to bring you his reminiscences in another article.

(Continued on page 20)

Winter in Dismal Swamp

(Continued from page 19)

When Rountree first started work as a game warden, there were only about six hunt clubs and they were small ones. "Then there were a lot of people who would go in with permits from Camp and they would go way back into the swamp and hunt bear. They'd kill some good sized bear but, since that was in the days before tagging, they would skin the bear and cut them up before trying to carry them out. It might take two or three men to carry a bear. Sometimes they would pole it, and it would take from, say, two o'clock until sunset to get out of the swamp.

Before the roadways were built along the ditches about a dozen years ago, hunters always had to wear hip boots and often got mired down. Jericho was the first ditch to have a bank road. "Of course it is a great deal easier working the swamp today," Rountree points out.

"In the old days there were only two ways to go in. You could go in on an old logging railroad line or on foot trails and there was a lot of walking to do. A warden would spend practically all day in the swamp checking."

Shelton Rountree (center) with Jack Olsen and Tony Tricla, of *Sports Illustrated* magazine, go over a map before entering the swamp.

Rountree worked the west side for the most part, while E. E. Walters, area leader now in Chesapeake, worked the east side. The only road on the Portsmouth Ditch side was along the Feeder Ditch.

"In the years past," says Rountree, "we've had wonderful cooperation from swamp hunters in trying to preserve game, when anyone was lost, and in watching out for fires."

Of course, Rountree did a lot to deserve that cooperation. As one columnist ("Outdoors with Rick") put it, "He will give his best friend a ticket as quick as he would a stranger," and a hunter was quoted as saying, "He approaches you in such a nice way when he gives you a ticket, you feel like he's almost doing you a favor."

As Rountree explains, "Under the setup, George Gehrken allotted areas (on the Union-Camp side of the swamp). Chains are up and all who travel the roads must have permission or keys to get in. Hunts are better organized now. Hunters in each section cut the bushes along the road in September with a home-made rig. The bushes would otherwise keep sunlight off the road and prevent it from drying

A barrel stand on a pine trunk along Jericho Ditch is camouflaged by brush.

out. They also fill holes in the roads with bricks." Even so, there are many times when only a jeep can get through.

Rountree recalls that when he first started hunting with the old Suffolk-White Marsh Deer Club. "There were a lot of deer then, but it was so thick the only time you got to shoot one was when it came out on the foot path, or on a log road." In those days the bushes hung over the foot paths. There were "bucks only" seasons, as there are again now.

Despite the apparent sanctuary of the swamp, there has been considerable trouble with self-hunting dogs. A few years ago, Rountree says they found 15 deer, which had died from excitement after running from dogs and coming to the ditch for water. Biologists who investigated found that the deer had been strangled by an excess of mucous in the throat. At that time a doe season was recommended, but the herd is now thinned down.

There have been various deer studies made in the swamp.

Stuart Davey of the Virginia Commission of Game and Inland Fisheries, conducted a study in 1956, which reported poor antler development and fawn production (1.1), the lowest to date in Virginia.

According to the Southeastern Cooperative Wildlife Disease Study Investigation of 1961, 14 deer were found to have died by acute congestion of the lungs and a major die-off was predicted.

In 1965 a technical deer study conducted by the Commission's Jack V. Gwynn found antler development of yearing bucks unimproved since 1952, deer herd condition poorer and weights also poor. The deer range had been badly overbrowsed. About 1962 I remember George Gehrken pointing out the high browse lines in one of the more open parts of the forest, for the young succulent deer foods that sprang up after old fires had grown out of reach of the deer.

More recent on-the-spot non-technical reports on the deer herd are more encouraging. John Lynn, who lives

in the swamp, says there are "not many deer. but better. One taken at the lake was 87 pounds after being dressed out."

Rountree also says: "Deer are much healthier now, nice and fat."

I asked Shelton Rountree why the deer hunting season is so much earlier in the Dismal Swamp than in other parts of Virginia and he explained that "By a bill of 1925, early hunting was established because of concern for the legs of dogs and deer being cut by ice in the swamp when the season came during colder dates."

I had never seen a wild turkey in the swamp and asked him about that. Rountree said that in the late 1930s, there had been turkeys along the White Marsh Road where the old Four-County Fair Ground had been, just above the swamp. and "where there were white oak acorns in the slues and flats." However, they disappeared in the late 1940s and there are none there now.

Rountree admits that he got lost once. just across Washington Ditch, on a foggy, cloudy day when he was trying to count turkeys flying off to roost. "I had counted seven

The green arrow of the juniper stands out against the leafless winter trees.

when one flew through an open slue and I tried to follow it from the noise. but it's hard to tell directions by sound. I got wound around and it was about four hours before I got back—by tracking myself!"

It seems strange to talk of having a *key* to Dismal Swamp, but that's what you must have to get in and "Capn John" Lynn, who lives by Jericho Ditch, is the keeper of the keys. He also does his own untechnical wildlife studies just referred to. The old-time logger and swamper says the ducks used to come up in his yard and even last summer a bear came right to his door. "I know the hunter that got him." There were raccoons too, but "loggers got 'em." "Not many deer, hut better."

E. E. Walters. who had come over from Chesapeake, joined us in our visit to "Capn" John and we got on the subject of lost hunters. Walters said that practically every week there used to be calls, hut now there is little prohlem. The last ones really lost were in 1964.

Those hunters had been in the swamp from Saturday through Sunday and until Monday morning. and the rescuers had come all the way through from Route 17 to Vick's Cabin Road that crosses the Portsmouth Ditch a few miles from Lake Drummond and worked all the way through to the lake looking for the five lost boys from Norfolk. They finally got to them about 8 a.m. Monday.

Rountree recalled another incident. A man and his son went into the swamp on a Saturday. It was "real cold, lots of water." They separated in the woods. The father put the boy on a hill where he would be dry.

Looking for this pair, the rescuers had to get on their stomachs and crawl in some places. "The cat'spaw briars would tear you up."

"The only way out at night. of course, is to use a compass. When it is dark, you must look at the compass every eight or ten feet to keep you on a straight course."

Two found hunters brought an unexpected law enforcement bonus. They were caught with a doe in a "bucks only" season. They had waited until dark to tote it out and then they got lost.

Poachers used to be much worse before there were organized clubs than they are now, Rountree says. However, "Some still go riding the roads on Saturday evening."

Now there are over 100 hunt clubs. Although the land is posted. they don't usually refuse a well-recommended visitor. Their control is very important to law enforcement, because it would be impossible otherwise to patrol an entire area of this size and terrain effectively.

E. E. Walters said one of the first lost hunters he looked for had shot a deer at the edge of one of the lights in the swamp after dark and didn't come to his car. His buddies were wondering about him and called Shelton Rountree who fired several rounds. They heard a gun answer one time. The hunter later told them the noise of the trains sounded all over the swamp. Finally. an old deer dog came up to him. He decided to keep calm and stand still until the dog left. When the dog went forward. the hunter kept walking and now and then he whistled. The dog would wait. Finally, in this way, he got to the Norfolk and Western Railroad and came out before they found him. Although it was a dark night, he was not too hadly scratched up. "If he'd tried to run he'd really have heen in trouble."

Rountree recalled a story about two young boys, about 13 or 14, whose mother called about 8 one evening. The

Shelton Rountree relaxes with daughter Leah's puppy.

warden took a small boat and went down Jericho Ditch toward the lake, about three miles. At that time you had to lie down to slide under the bushes on the old ditch. He fired a gun but there was no answer. The next morning a cub plane flew up and down Jericho. Finally the boys realized it was flying the same route, probably looking for them, so they went toward it. "They walked until they hit the ditch. All their clothes were torn off except for their belts and a little bit of their pants. They were scratched all over. They had been out all night and until about noon the next day."

Shelton Rountree's wife, Dorothy, has kept a scrapbook which bulges with clippings. Typical of lost-hunter headlines are these: "Credit Two With Saving Lives of Injured Pair" (1955). W. E. Haywood, Sr., and his son, Alton, 18, were lost and Rountree directed the overall search.

What Haywood had to say about the experience is probably much like what has happened to many others lost in the swamp:

> We just kept a-walking, kept a-walking, kept a-walking and kept a-walking. We never did find the field but we came to a tree with a bench cut into it like a bear-hunting perch. Then we kept a-going, kept a-going, kept a-going until we didn't know which way to go.

The Haywoods had a book of matches and managed to keep a fire going from "cold dark till midnight." They saw helicopters and used up 17 shells shooting to attract attention, but they couldn't signal the planes. Pointing up from his hospital bed, Haywood said, "That woods, when you look up, it looks like this ceiling."

Every time his son would climb a tree, he'd report, "Daddy, I don't see nothing but the swamp."

"The worst experience I've ever had in my life," the elder Haywood called it.

The Rountree record book shows how time-demanding such an incident can be, not only to the warden, but also to his wife and often to an army of searchers—and, in this case, all because a father and son went into the swamp from a farm in Suffolk to give a new squirrel dog a trial run.

Here are sample entries:

December 13, 1955

12:10 A.M. Mrs. Wallace Brinkley, White Marsh Road, called that 2 hunters, W. E. Haywood, age 66, and son, Alton B. Haywood (18), were lost in Dismal Swamp.

12:15 A.M. Reported the above to Deputy Sheriff Jessie B. Eure.

12:15 A.M. Called Jack Booth, Commander of Civil Air Patrol (not equipped to help).

1:00 A.M. Talked to one of the Haywood boys.

2:30 A.M. One of Haywood boys called . . . going into swamp . . . .

6:15 A.M. Haywoods called again and said they were unable to find lost hunters.

6:50 A.M. Called WLPM and asked them to make announcement . . . and ask for help.

7:00 A.M. Called Coast Guard . . . asked air assistance . . . and thus started Operation Dismal Swamp.

9:50 A.M. Shelton called and asked me to get people out to help—called the following:

1. WLPM
2. Harry Smith—Rogers Deer Club
3. Rudolph Badger (to contact Pop Oyster)
4. Linwood Parker (to contact Clyde Rawls)
5. Jack Howell (National Guard)
6. Red Cross (were willing to set up canteen)

Jimmie Melito called and volunteered.
Ben Church called and volunteered.
Salvation Army called for instructions to get out to Brinkleys with coffee and doughnuts.

7. Leonard Williams
8. Police Dept.
9. Fire Dept.
10. Gale (County, Fire Dept.)
11. Monogram Field (asked for help).

Ed Joyner, United Press, Richmond.
Thaxton Brown (confirming National Guard).
Rogers Deer Club—reporting several men available.

Noon Floyd Byrd
Volunteers calling (6—1 with plane)
Coast Guard called . . . reported fires northwest of Hdqrs.
Mrs. Glover called . . . what progress . . .
Sam Perry . . . volunteered men and boats (sent in 4 men to Lake Drummond).

9:00 P.M. Roland Halstead called about more fires being spotted.
Dick Poole —*Virginian Pilot* called—Madison 24512 (collect) if Shelton came in before 2:00 A.M.
Constant contact was kept between home, county, police, WLPM & search headquarters.

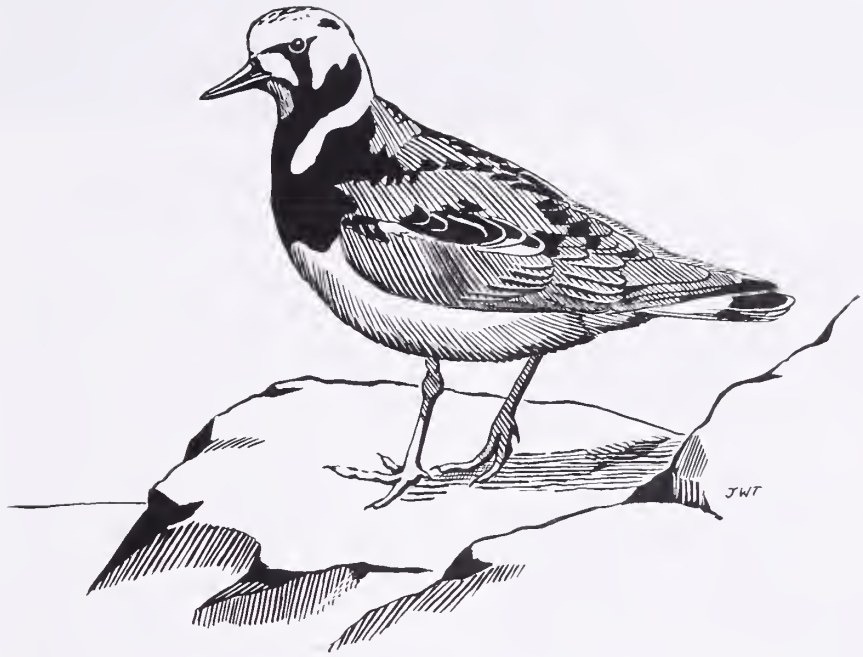
This covers only about a third of the record of a single lost-hunter incident. Most of them could be avoided and Rountree has good advice for hunters who don't want to get lost in the swamp: carry plenty of shells to signal position, carry matches in a waterproof box, a few chocolate bars, warm clothes, a compass, a flashlight, a hunting knife. Also, light a fire and stay with it.

Things were a lot quieter the last evening I was in Suffolk. A cougar had been reported seen in Whaleyville, but Rountree is a realist. He had not been able to find the track. He had time to romp with the veteran squirrel-dog, Peanut. He had time to show me ancient projectile points found near the chipping stone in Lake Drummond and to talk about the many surface finds in the peanut fields all along the Desert Road to Corapeake. "The hogs root them up," he said.

In October 1962, Shelton Rountree was named Game Warden of the Year at the annual meeting of the Southeastern Association of Game, Fish and Conservation Commissioners in Charleston, South Carolina. Then, in 1965 he was endorsed by the Nansemond County Board of Supervisors as successor to Roland O. Halstead, who was planning to retire as Hampton Roads District Game Warden Supervisor. His appointment was announced in May.

It is a well-deserved honor and responsibility. However, it means more paperwork, more driving, and less time out of doors in the swamp or elsewhere. He must miss that, but then again he may be lucky not to have to watch so closely what seems in store, especially on the east side, the ultimate taming of the Great Dismal Swamp.

Bird of the Month:



Ruddy Turnstone

By DR. J. J. MURRAY
Lexington

THIS little shorebird carries the somewhat fearsome scientific name of *Arenaria interpres morinella*. Fortunately it does not know this, so it can be at peace. While belonging to a different family, it is closely related to our common killdeer and to the beautiful golden plover.

The ruddy turnstone nests far north in upper Alaska and in the northern stretches of Canada. It winters along the Atlantic and Gulf coasts from South Carolina down and on the northern parts of both coasts of South America. Nonbreeding birds in small numbers spend the summer on our Atlantic coast. On the Virginia coast it is a rather common migrant in fall and spring. We have a few records in summer and winter. Inland, there are records for Alexandria, Albemarle County, Lexington, and Blacksburg.

The turnstone is a shorebird of medium size, 8 or 9 inches long, slightly smaller than a killdeer. With its strange harlequin pattern, it is striking in appearance. The male is reddish and black on the back. The head is white, with a pattern of black marks on the side. There is a large black band across the lower throat and breast. The rest of the underparts are white. The spread wing has a startling black and white rufous pattern. The tail is white at the base with a wide black band and white tip. The legs and feet are reddish-orange. The bill is black; the neck is short.

The female is similar, but duller, with less reddish on the back. Adult birds in winter and young birds are brownish above and white below, except for the dusky throat.

The name "turnstone" comes from the most striking habit of the bird, that of turning over stones or large seashells to feed on the insects or small tide creatures hiding beneath them. Some can nearly always be found on bridges or causeways over salt water, feeding on fish heads or bait or worthless fish thrown aside by the fishermen. They run about fearlessly, dodging the passing cars and seeming to know the fishermen will not disturb them. In the same way, they are common about beaches, where they can capture food brought in by the surf.

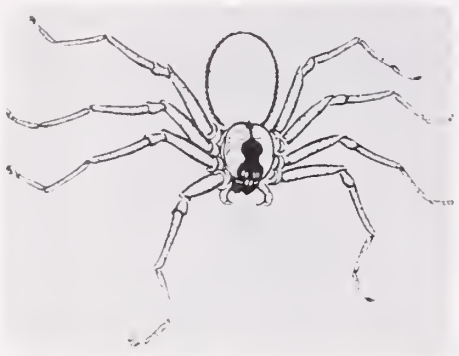
They breed so far north that not many nests have ever been found. The nest is said to be simply a "scrape" in the sand or depression in the ground in the tundra. Four pear-shaped eggs are laid, light cream or olive-brown in color, and spotted, mainly about the larger end. These are laid in June along the Bering Sea coast of Alaska, and in late June and July along the Arctic coasts of Alaska and Canada.

It is known that both sexes share in incubation, though it is not known how long it takes for the eggs to hatch.

I have never eaten a turnstone, but they are said to be very good when fat. Now, of course, they are protected by Federal law.

Edited by HARRY GILLAM

Poisonous Spiders Infiltrate



The black widow's notoriety as the only spider found in most of the U. S. whose bite is serious to humans is being challenged by a newcomer, the brown recluse or fiddler *(Loxosceles reclusa)*. It is apparently well established in Kentucky, its presence is suspected in West Virginia, and it may some day find its way to Virginia if it has not already done so.

The small dusty brown spider's chief identifying characteristic is a chocolate brown violin-shaped mark on its head. Fine short hairs which cover its body and legs give it a suede-like appearance.

Although the recluse's venom is reported to be as toxic as that of the black widow, the symptoms are quite different. The bite of the black widow causes intense pain, cramps, nausea and labored breathing, among other reactions. The bite of the recluse may go largely unnoticed at the time although some of the above symptoms may appear later. The bite becomes red and swollen with a small blister forming in the center. The wounds heal slowly and may become ulcerous or even gangrenous and leave unsightly scars where the venom destroys large areas of tissue.

The spider is frequently encountered in houses and storage places where it finds refuge in boxes and old clothes and has been even known to bite sleepers who crush the spider in rolling over. Recreationists venturing toward Virginia's western border and beyond should keep this spider in mind and avoid it if encountered.

Conservation Jobs Await High School Seniors

Summer jobs on national parks, wildlife refuges and other public lands will again be available to a limited number of highly qualified high school seniors who are planning careers in the conservation field, under a cooperative program between the U. S. Department of the Interior and the Izaak Walton League of America. The League will select outstanding high school senior boys for work with the U. S. D. I. next summer. To qualify, a young man must expect to graduate from high school this spring, be 18 years of age by June 15, 1968, and should have definite plans to enter a college or university for advance study in wildlife management, forestry, soil and range conservation, geology, outdoor recreation or related fields. Applications from Virginia students will be handled by a committee of the Commonwealth Chapter, Virginia Division of the Izaak Walton League, and should be addressed to Chester F. Phelps, Chairman, P. O. Box 1642, Richmond, Virginia 23213.

Each applicant must submit a completed employment application on U. S. Government Form 57, available at any Post Office; a transcript of his high school records; a written recommendation from an adult, other than a member of his family, who knows the applicant and his qualifications; and a letter from the applicant stating his college career plans, describing his extracurricular activities in high school including any conservation work he has done, and discussing his reasons for seeking summer employment with the Department of the Interior. Applications must be in the hands of the chairman of the selection committee no later than March 22, 1968.

Game Commission Receives First Outdoor Recreation Grant

The Virginia Commission of Game and Inland Fisheries has received notification from the Commission of Outdoor Recreation of its first actual Federal Land and Water Conservation Fund grant. The $185,149 grant will match State Game Commission funds used in the acquisition of over two thousand acres of land to establish the Amelia Wildlife Management Area in Amelia County, and over six hundred acres added to the north side of the existing Powhatan Wildlife Management Area in Powhatan County.

Further development of these areas for public outdoor recreation is planned, with facilities for public hunting, fishing, camping, horseback riding, field trials and nature study. Federal matching funds enable the Game Commission to accelerate its acquisition and development of multiple use outdoor recreation areas.

The Land and Water Conservation Fund provides federal funds for matching grants to states for approved outdoor projects, and is supported by revenue from the sale of the annual $7 Golden Eagle Permit, other federal outdoor recreation entrance and user fees, the sale of federal surplus real property, and the federal motorboat fuels tax. In Virginia, available federal matching grants are allocated by the Commission of Outdoor Recreation to approved projects that conform with the Virginia Outdoors Plan—the long range, comprehensive State plan for conservation and outdoor recreation development.

An additional purchase of 877 acres extends the Game Commission's Powhatan Wildlife Management Area from south of U. S. 60 to the Powhatan Lakes about a mile north of the highway. This boosts the acreage in the Commission-owned Powhatan Area to about 5,000 acres. Not only will the newly acquired lands increase hunting potential, they will make sufficient land available to allow camping at the lake.

About 400 acres of the recently purchased tract are in fields and the remainder is wooded including about 1½ miles of Sallee Creek. The fields are to be share-cropped. The area will be marked and opened to hunting in time for turkey hunters to utilize it during the spring gobbler season.

Edited by ANN PILCHER

44,000 Virginians Trained in Safe Hunting Techniques

Courtesy Blackstone *Courier Record*

Tommy Watkins, left, and Jean Clem, right, were two of the Kenston Forest High School students who completed a hunter safety course taught last fall in Nottoway County by game wardens Nelson Phelps, left center, and Melvin Johnson, holding gun.

Clinch Valley News photo by A. Larimer

From left: Bill Strong, Wanda Horton, Ann Walker, and Robert Smith hold certificates of achievement after completing a 3-day hunter safety course at Tazewell High School last fall. Game Commission Safety Officer James N. Kerrick was their instructor.

First-Rate Hunter!

Looking back over the western deer and turkey season, certainly one of the most successful sportsmen was Kenneth Funk of Rocky Mount. Funk bagged a deer opening day of the season in Craig County and a turkey the next day. Pretty good for a 12-year-old boy on his first hunt.

As of January 1968, 6¼ years after the Virginia Game Commission, in cooperation with the National Rifle Association, began offering a 4-hour hunter safety course to interested groups of young people and adults, 43,855 persons had completed the course and 1,118 individuals had been certified as hunter safety instructors. Game Commission personnel, who have trained 20,000 students and instructors, presented most of the early classes, but as teachers, sportsmen and others throughout the state became qualified, they undertook a portion of the teaching task. Members of the Izaak Walton League, Boy Scouts, C & P Telephone Company, Optometric Association, Virginia State Rifle and Revolver Association, Jaycees, military authorities, and others deserve much of the credit for the growth of the program.

Concentrated effort is directed toward the schools, where hunter safety courses are offered during physical education or study hall periods. In summertime the course is presented at 4-H and Boy Scout camps.

Teachers: It's Time to Think About Summer School

A worthwhile and practical course to take is one on VIRGINIA'S NATURAL RESOURCES. It will be given at

V. P. I., Blacksburg—
June 13-June 29, 1968

Madison College, Harrisonburg—
June 17-July 5, 1968

Virginia State College, Petersburg
—June 24-July 12, 1968

The College of William and Mary, Williamsburg—July 22-August 9, 1968

SCHOLARSHIPS covering tuition, meals & lodging are available from funds provided by several interested organizations.

CREDITS: 3 semester hours or 4½ quarter hours.

Write: Mr. E. W. Mundie, Short Course Director, V. P. I., Seitz Hall, Blacksburg, Virginia 24061

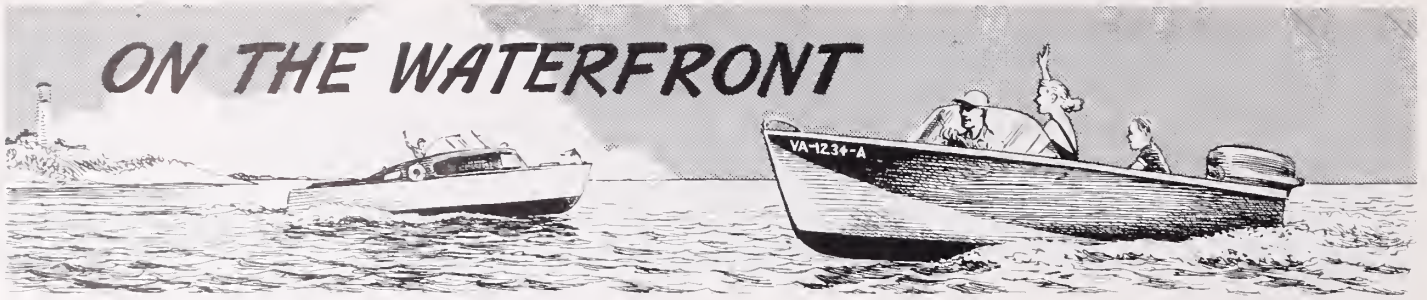
Since the program was initiated, there have been no hunting fatalities involving hunter-safety trained shooters. "With an increase of licensed hunters each year and our hunting area decreasing, hunter safety education will play a vital role in reducing tragedies afield," says Game Commission Safety Officer Jim Kerrick.

Courtesy *Page News & Courier*

Game Warden Robert Inskeep, scoutmaster, presents patches, certificates and wallet-sized cards to members of Luray's Troop 7 Boy Scouts for completing the NRA Hunter Safety Course. Shown receiving their awards are Steve Munson, Johnny Linaburg, Rickey P. Miller, Rickey L. Miller, Gary Housden, Paul Catron and Jerry Dofflemyer.

Game Warden Gordon Wilkes details operation of a shotgun to Fauquier High students Matt O'Neill, of Warrenton, Margaret Wince, Upperville, Robin Gulick, Calverton, and Paul Decher, Warrenton. Nearly 1200 students, four coaches, and two teachers took the four-day hunter safety program last November. Field Educational Services Coordinator Darrell Ferrell and Wardens W. L. Flory, David Thompson, Ralph Holdaway, and Mr. Wilkes instructed. Program expenses were borne by the Fauquier Fish and Game Association.

Fauquier Democrat photo by P. Sullivan



Edited by JIM KERRICK

Selecting Your Boat

Buying a boat is a fascinating game and without any one hard-fast rule or precise method of making a decision. First you must determine how much money you can afford to spend to include all the required and necessary accessories.

A given sum will buy any of a number of different type boats; therefore, you must decide to what principal use you will put the boat, how many passengers you will carry, and where you intend to do the bulk of your boating.

Discuss these points with your family, especially the features of a prospective craft. An open boat might satisfy you and your fishing companions, but your family may be much happier with a cabin for privacy as well as protection from the elements of nature. Boating on open bays or coastal waters, where exposure to squalls is always a risk, requires a deep sea hull with plenty of freeboard. On the other hand impoundments are ideal for houseboats, so select your craft for the job you are going to call on it to do.

Where are you going to store or moor your boat? Are you within motoring distance of a marina or yacht basin? Suburban homeowners may park boat trailers in their back yards. In some places you cannot leave a boat and trailer parked on the street.

The weight of your boat is important because weight is a factor in trailering a boat, and you may be contemplating long, amphibious cross-country vacation cruises. Boats up to 1500 pounds can normally be trailered with conventional equipment, but anything heavier may call for overload springs on your car and trailer brakes.

Today hull material is not as important as getting dependable construction. Each material has its advantages and disadvantages, but quality manufacture by an established boat builder ensures good service with modern material as well as traditional ones. Aluminum is admirable as a lightweight material because it is light and easy to maintain.

Ultralightweight craft: can be carried on tops of cars, in cargo space of station wagons, and aboard larger boats as tenders. Fine for sheltered waters. May be rigged for sail or power. Good beginner's boat.

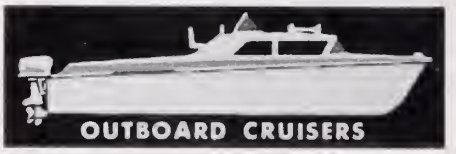
Capacity: two or three. Light enough to be lifted and carried on bar carriers atop a car. Aluminum is most popular material for hull. Cartoppers offer more comfort, stability, and seaworthiness than do prams.

Modern canoes and kayaks are similar in design to early Indian and Eskimo craft. Long, slender, pointed at both ends, they are easy to use with paddle, power, or sail. Hang outboard on brackets or square stern.

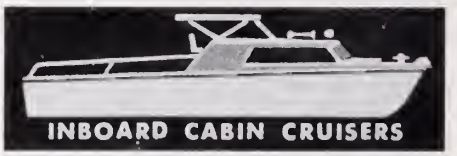
Low-pressure inflatable boats of rubber are longtime sportsmen's favorites. Can be stored deflated in bags tucked away in a closet. Available in raft, rowboat, and kayak designs, with power optional on most.

Large or small, the utility is one of the most popular types among fishermen, water skiers, and skindivers. Open, uncluttered cockpits leave room for action. Utilities make good work boats. Bottom designs vary.

Sports cars of the water. They are built for speed and are the first choice of many water skiers. Long forward deck, windshielded to keep passengers dry. Some runabouts have two cockpits with walk-through space.

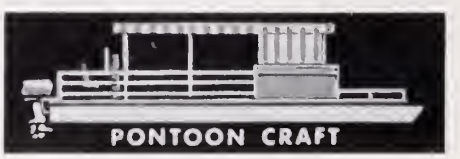


Shelter cabin with minimum live-aboard facilities. Accommodates up to four overnight. May or may not have enclosed cabin. Use of camper tops or canvas extends capacity. Good trailerable vacation craft for family.

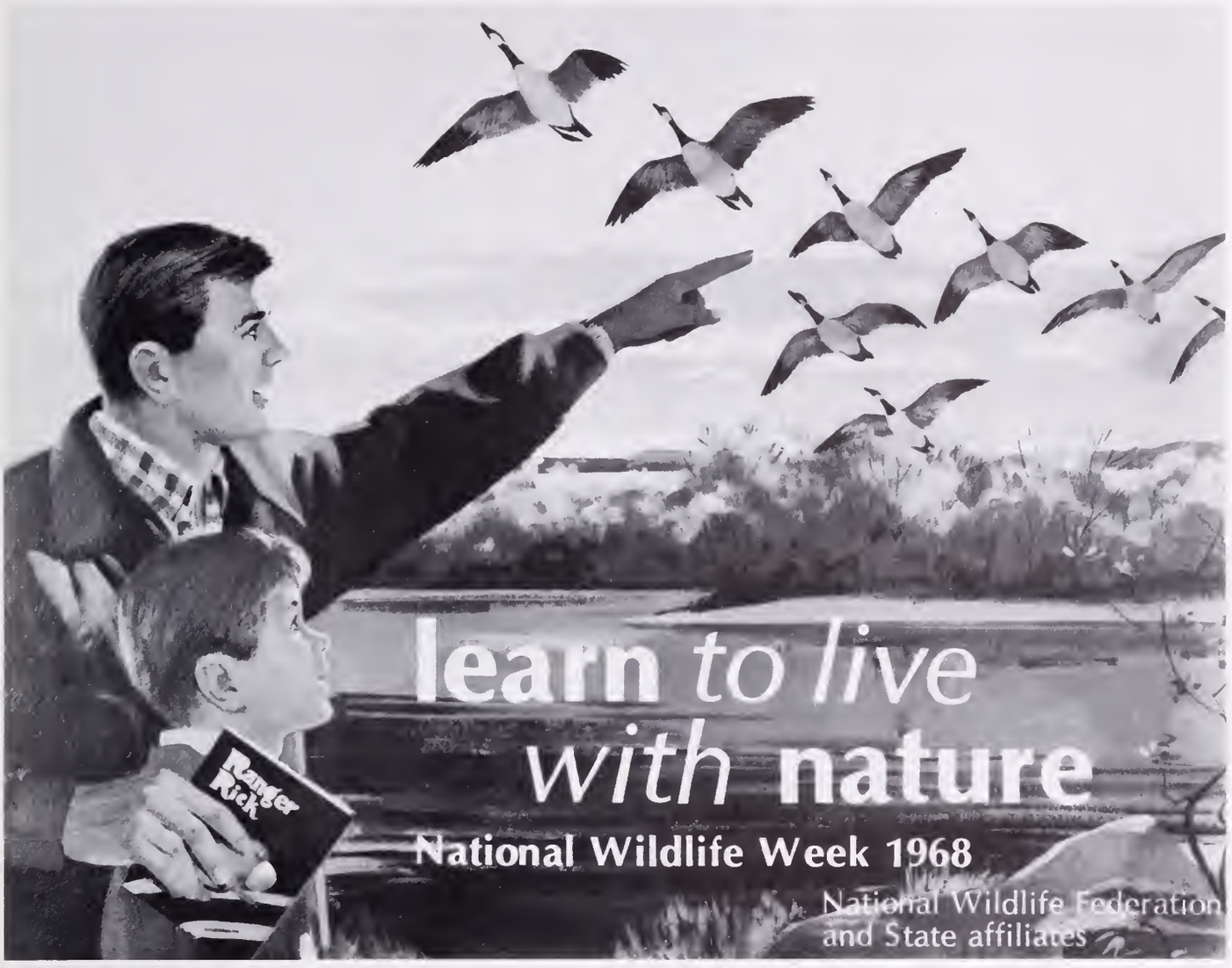


These yacht-style inboards have extensive cruise accommodations—toilet, galley with refrigerator, stove, comfortable bunks, luxury living. The bigger the model, the more passengers it takes. For experienced boatmen.

Their barge-type hulls are slow-moving but offer great comfort at less cost than cabin cruisers. Homelike facilities include ovens and showers. Excellent accommodations for cruising on protected waterways.



Raftlike platform suspended on flotation pontoons. Roomy deck usually open, with railings, sun canopies, and tentlike "cabins" optional. Excellent for family use. May be moved to water on special trailer.



Conservation Education Is Wildlife Week Theme

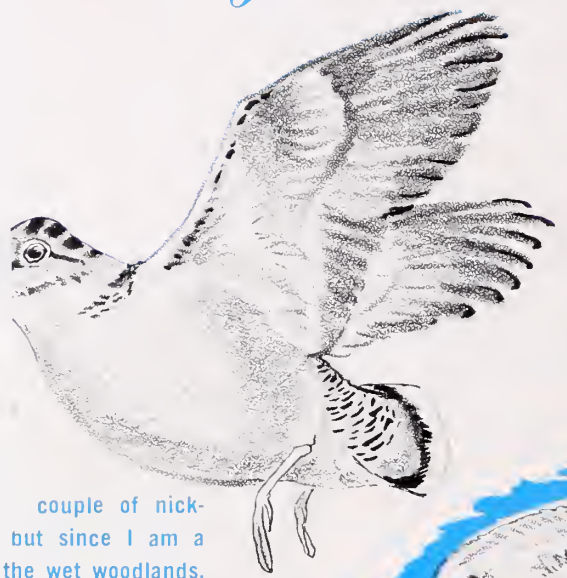
"LEARN to Live with Nature" is the slogan for National Wildlife Week 1968, March 17-23. The observance will focus attention on the importance of conservation education as a means for making the best use of all natural resources.

During Wildlife Week citizens in every part of the nation will be reminded that it is necessary to learn how to stop pollution and waste, keep open spaces unspoiled, and enjoy the benefits of outdoor recreation without ruining the out-of-doors in the process.

The need to teach conservation as a part of every school program is especially important. The Wildlife Week message points out that children are being taught science, foreign languages, music, and sportsmanship in the classroom, but often they are not being taught how to live in harmony with the only environment that they will ever have.

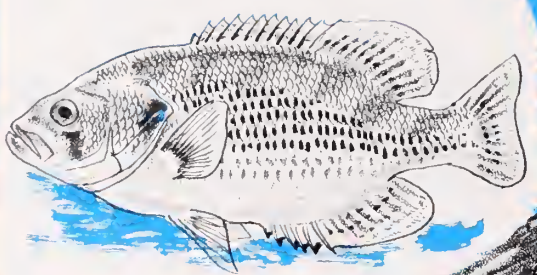
Creating an awareness of the importance of teaching conservation is a job that can best be done by those community leaders who also direct the sportsmen and conservation club activities. The Virginia Wildlife Federation will be depending upon such local support to make the 1968 observance of National Wildlife Week an outstanding success in Virginia.

hat's My Name?



couple of nick-
names, but since I am a
bird of the wet woodlands,
I prefer .

2 I'm really not as bad as some folks think. My name probably comes from my stub tail .

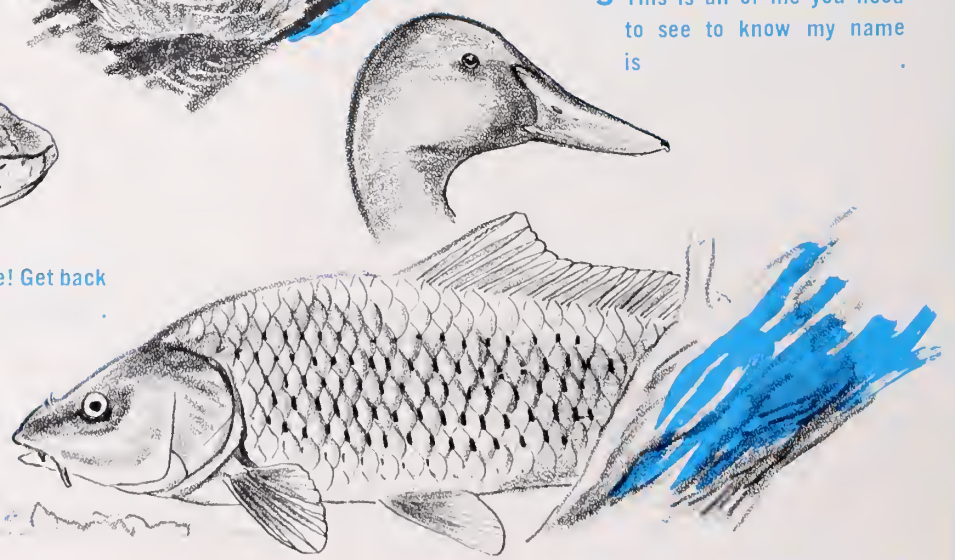


3 You say you would like to see more of me? Try some warm night; I'm a .

4 I'll settle for "redeye," but you should know me as .

5 This is all of me you need to see to know my name is .

6 You're a bit too close! Get back because I'm a .



7 My folks came from Europe years ago; I'm a .

1. WOODCOCK 2. BOBCAT 3. FLYING SQUIRREL 4. ROCK BASS 5. CANVASBACK
6. COPPERHEAD 7. CARP